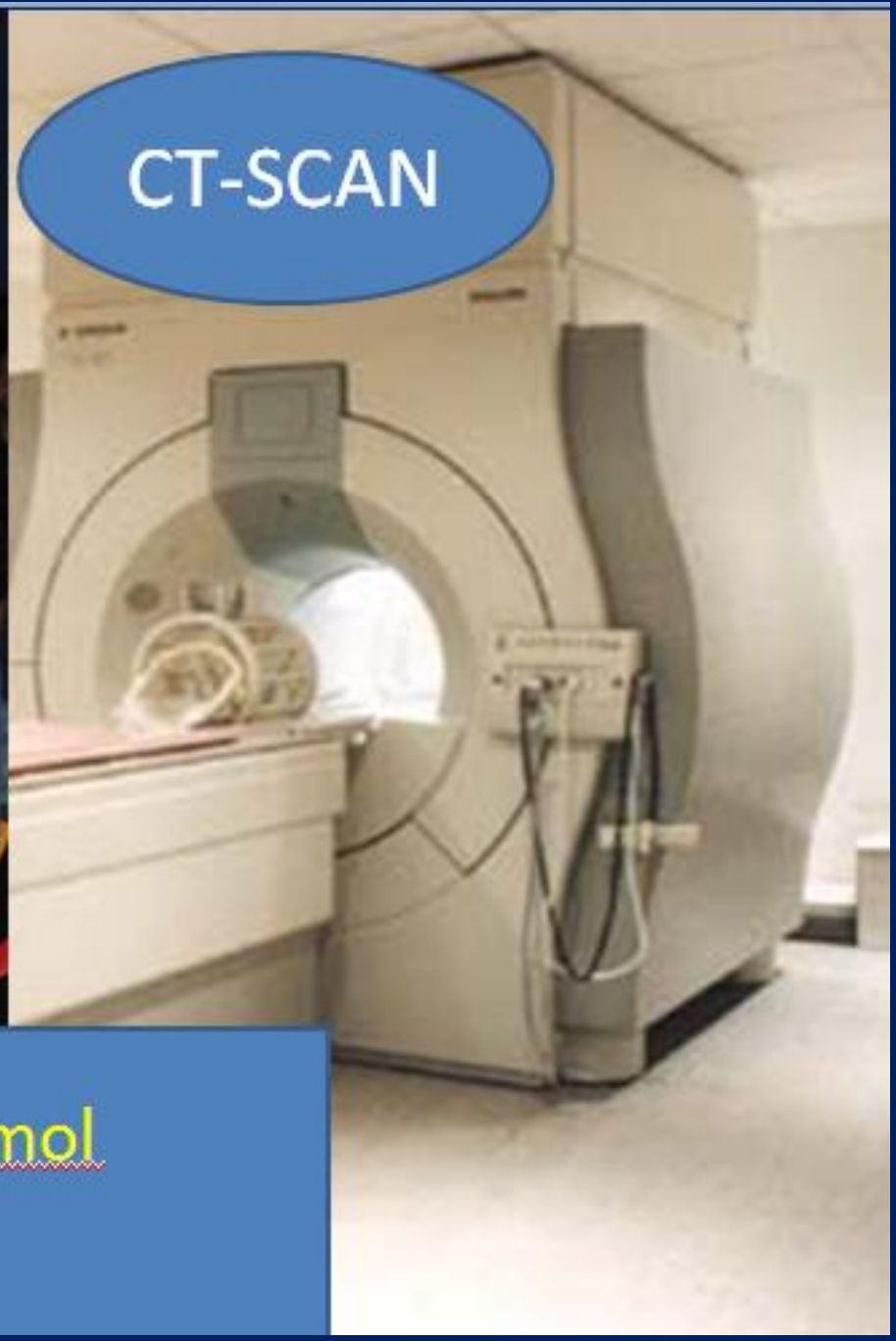


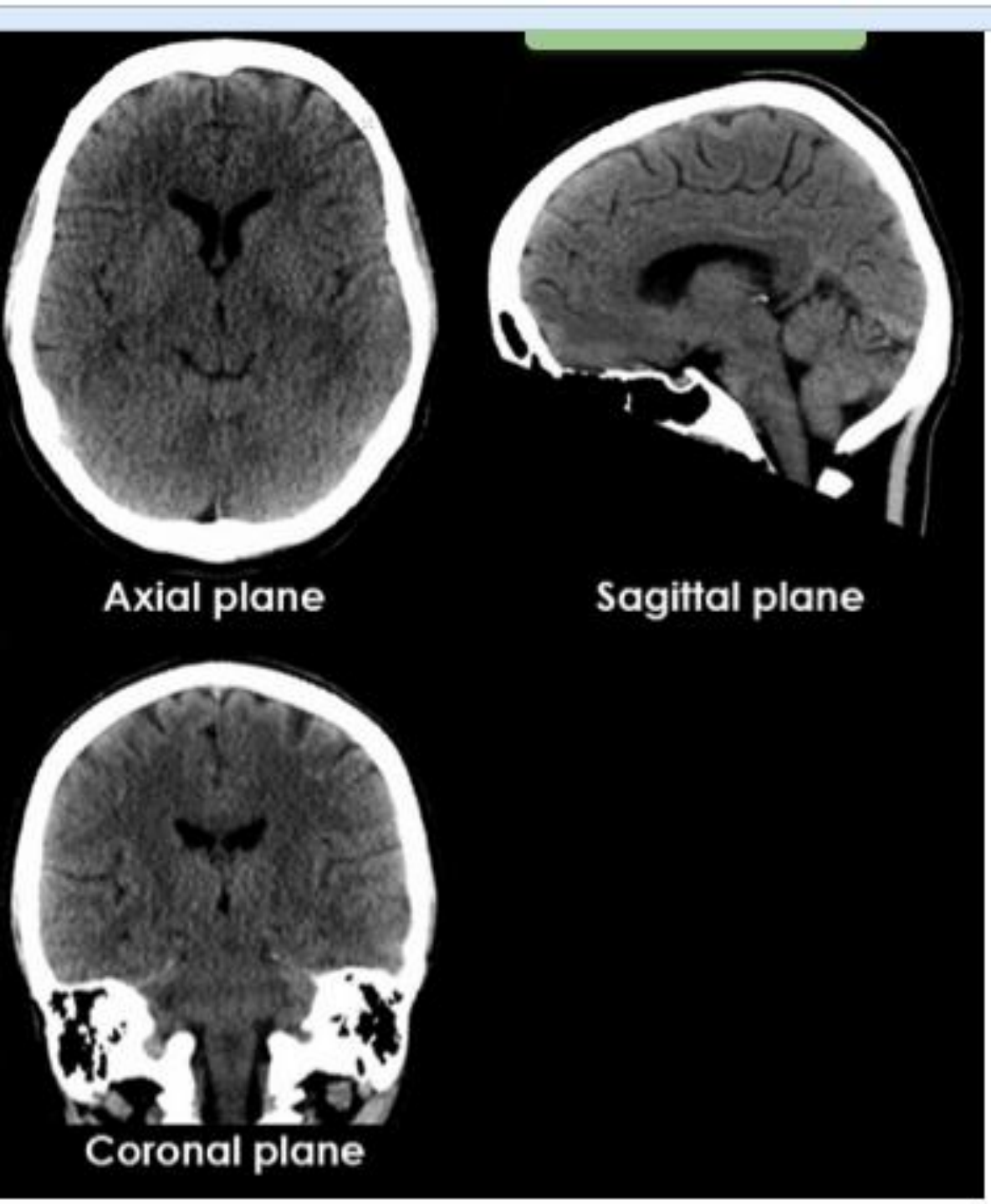
Dr . Shahidullah shamol

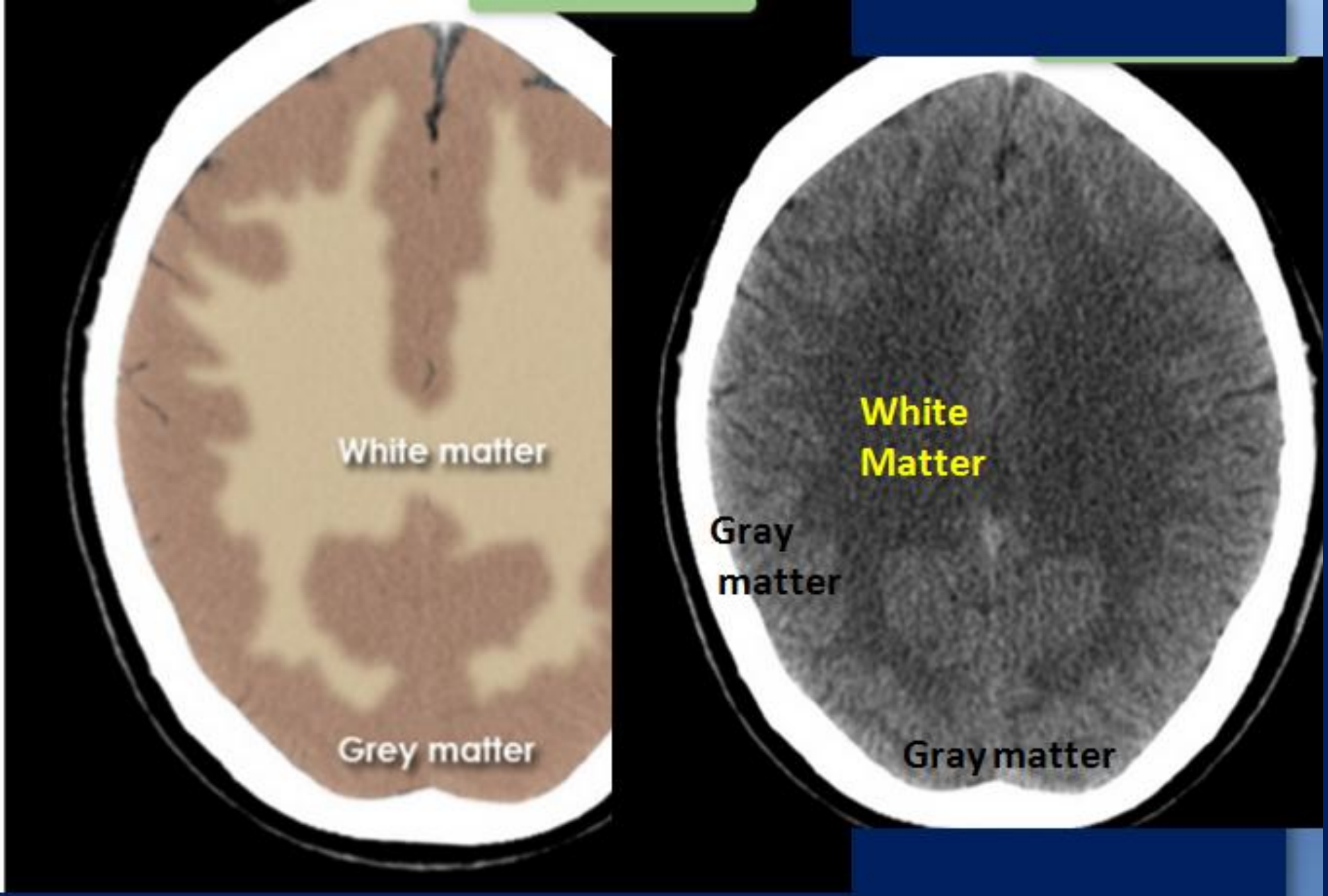
FCPS(medicine)

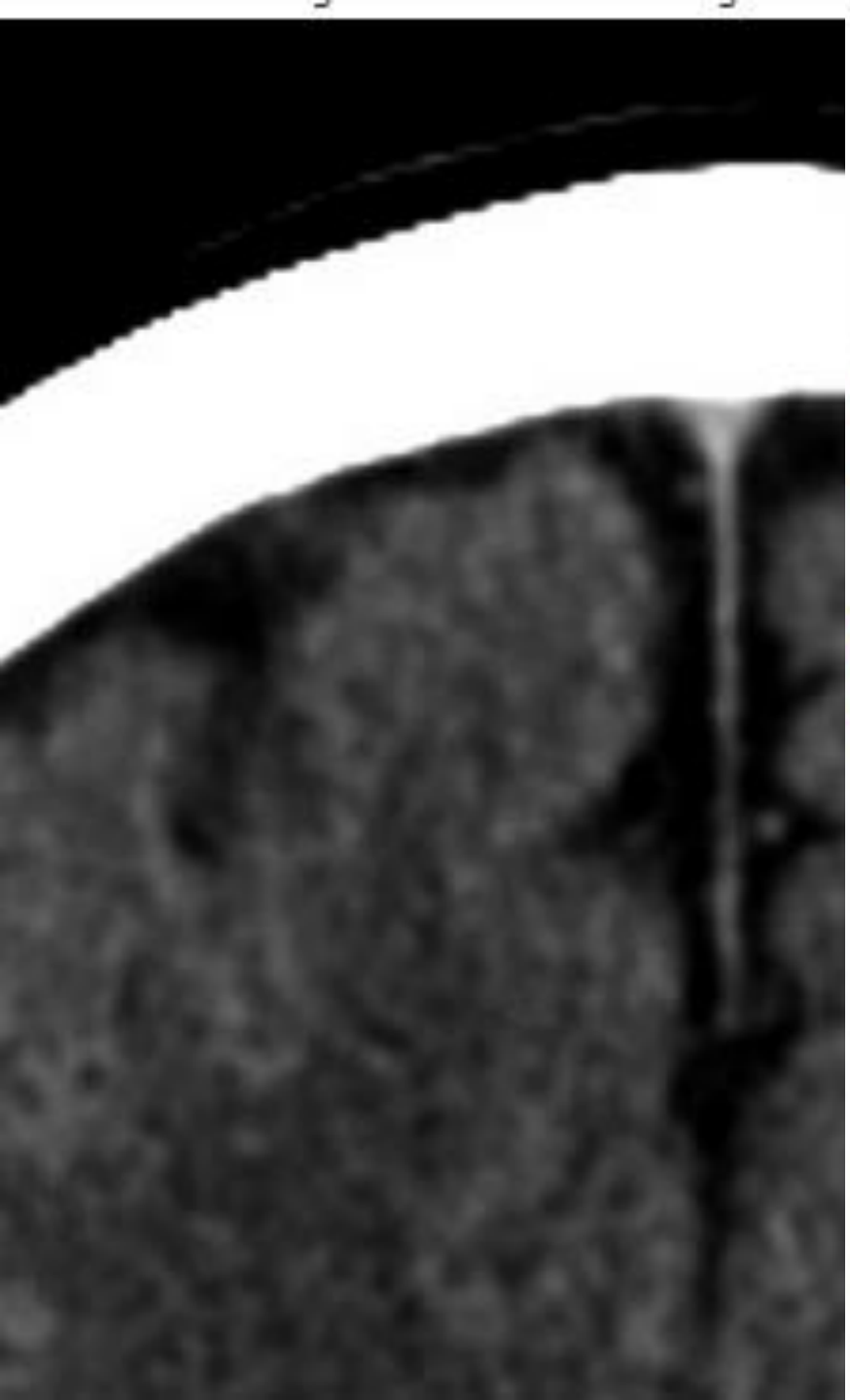
Gray and white matter

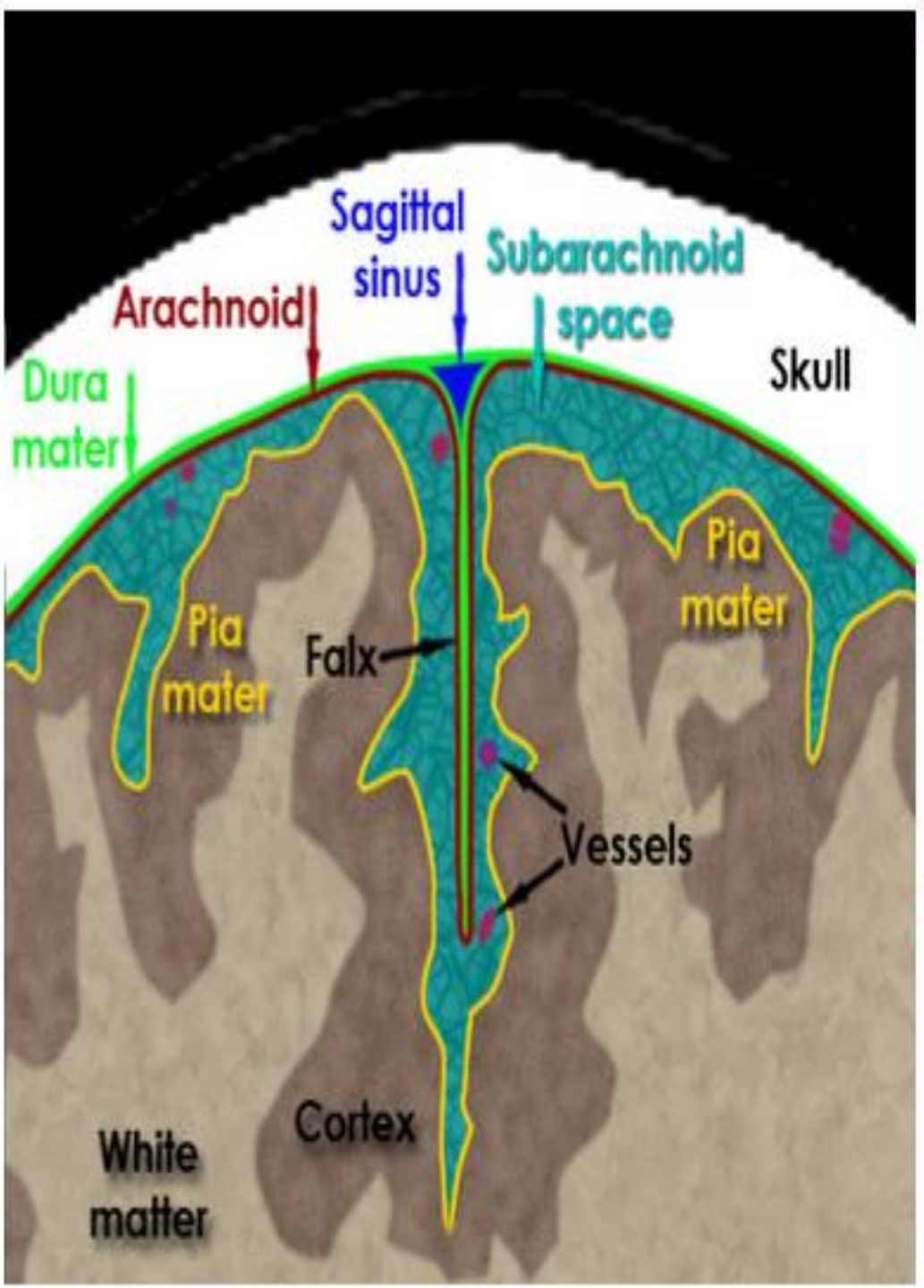
Dura , pia , sub-arachnoid matter

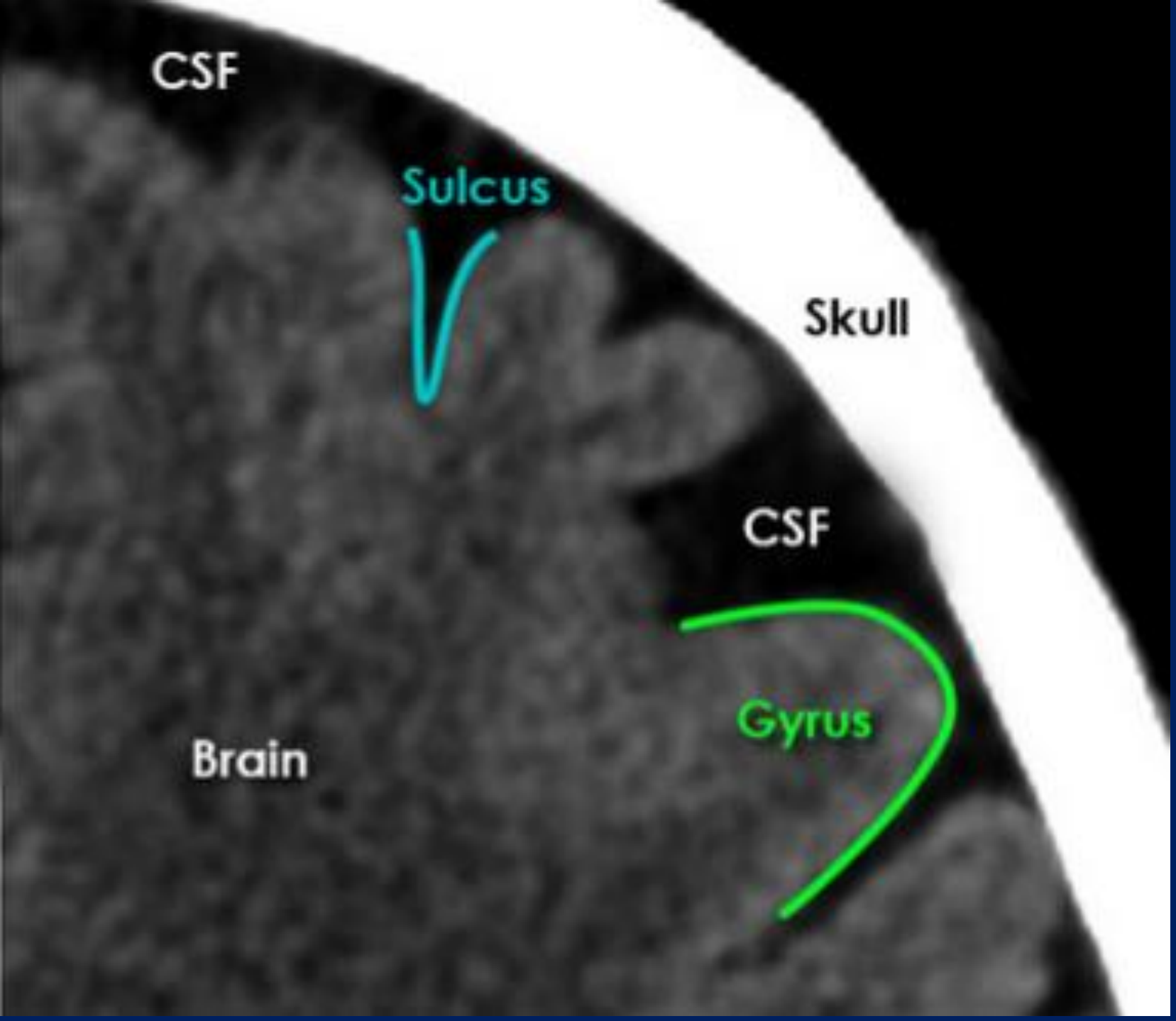
Gyrus and sulcus


Axial plane
Sagittal plane
Coronal plane

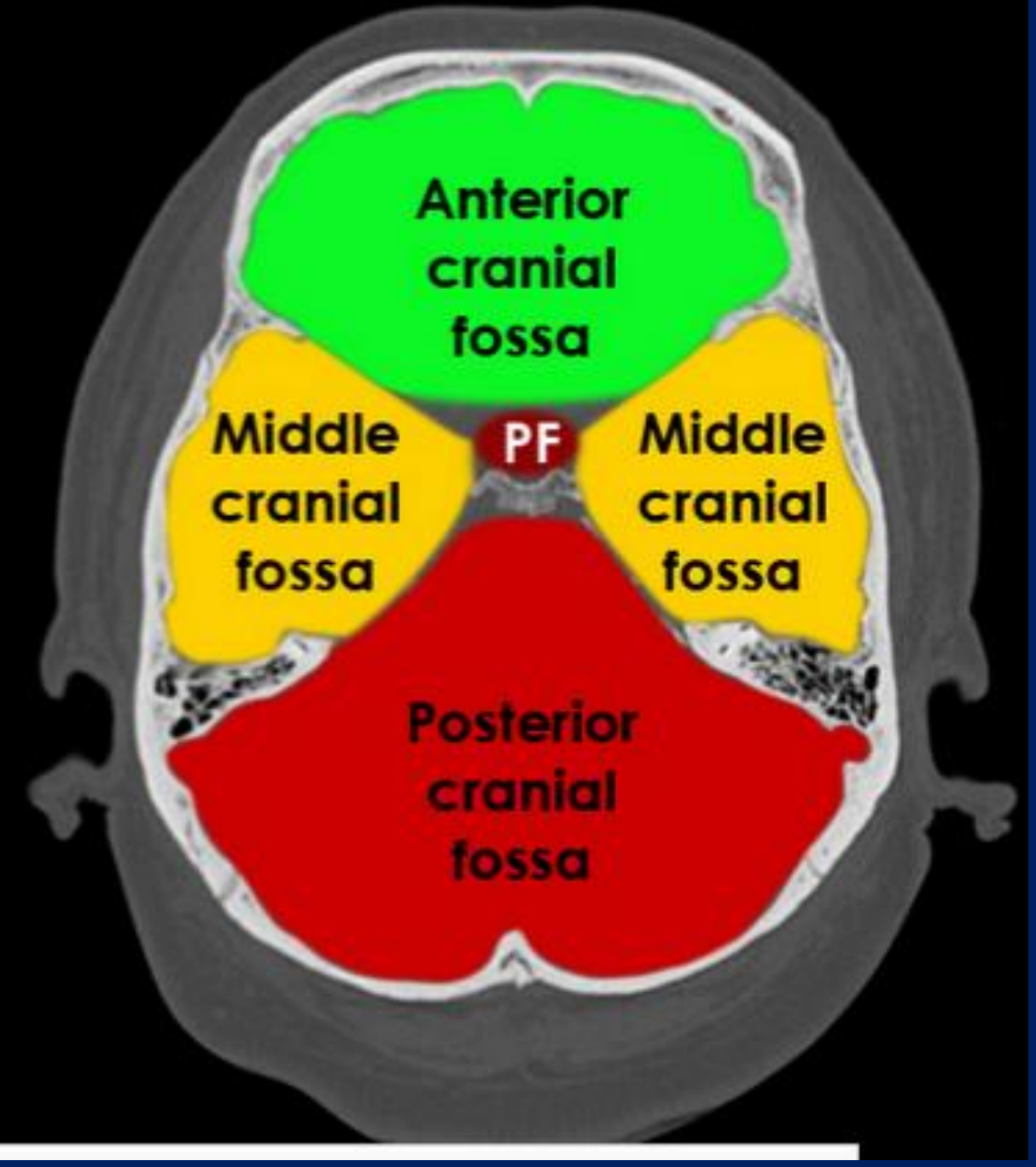

White matter
Grey matter
White
Matter
Gray
matter
Gray matter

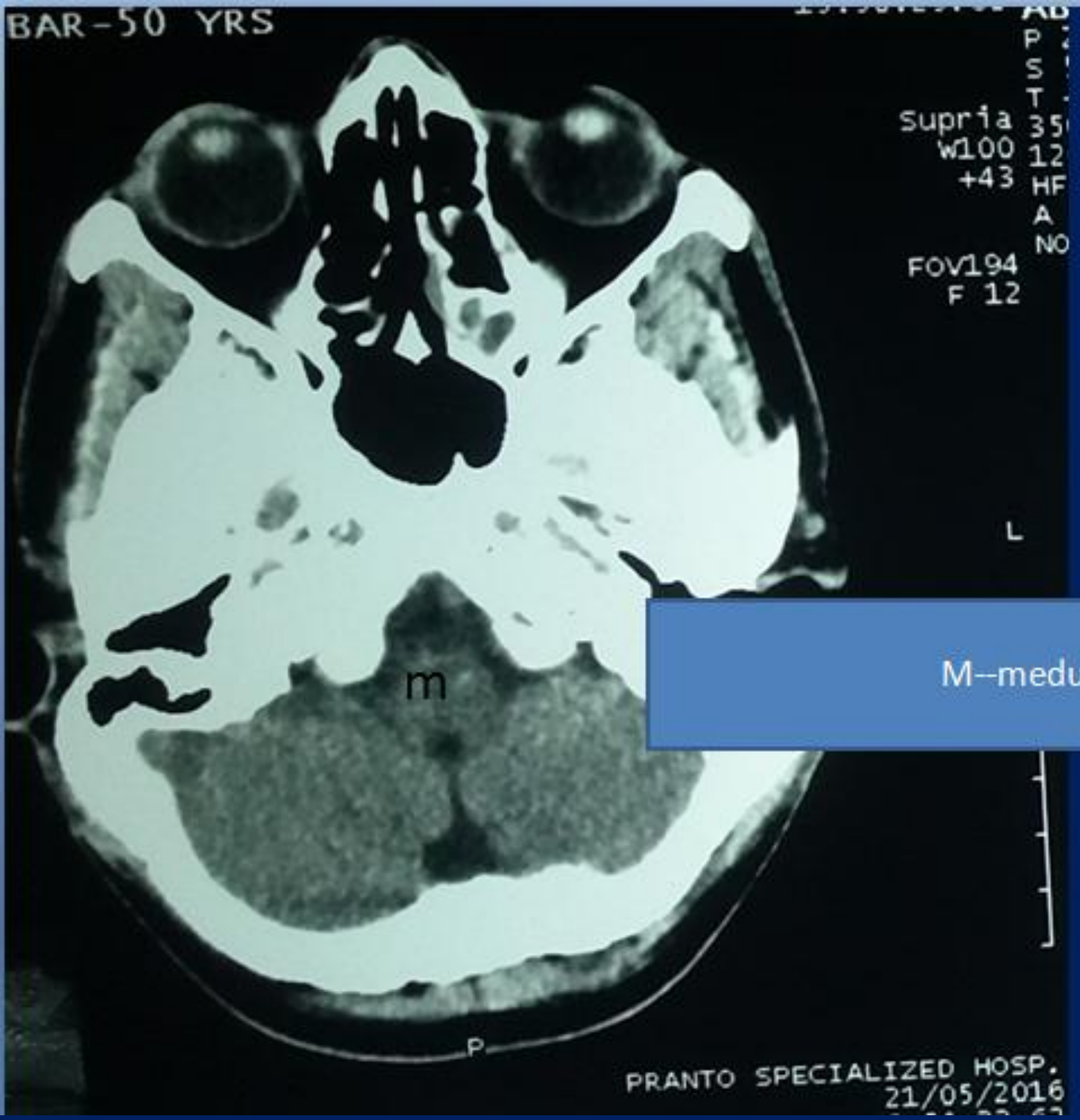



Sagittal sinus
Subarachnoid space
Arachnoid
Skull
Dura mater
Pia mater
Falx
Pia mater
Vessels
Cortex
White matter

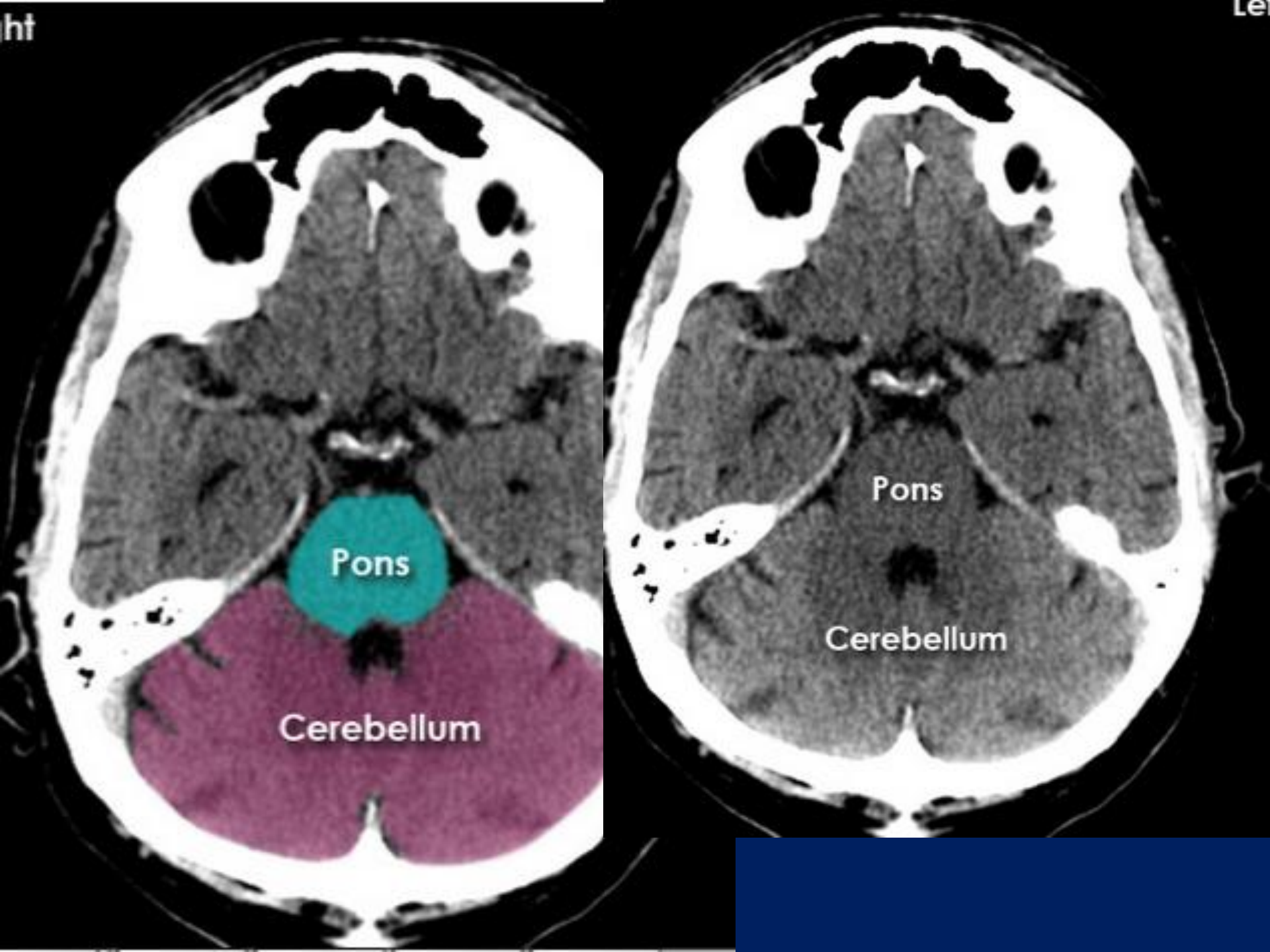

CSF
Sulcus
Skull
CSF
Gyrus
Brain

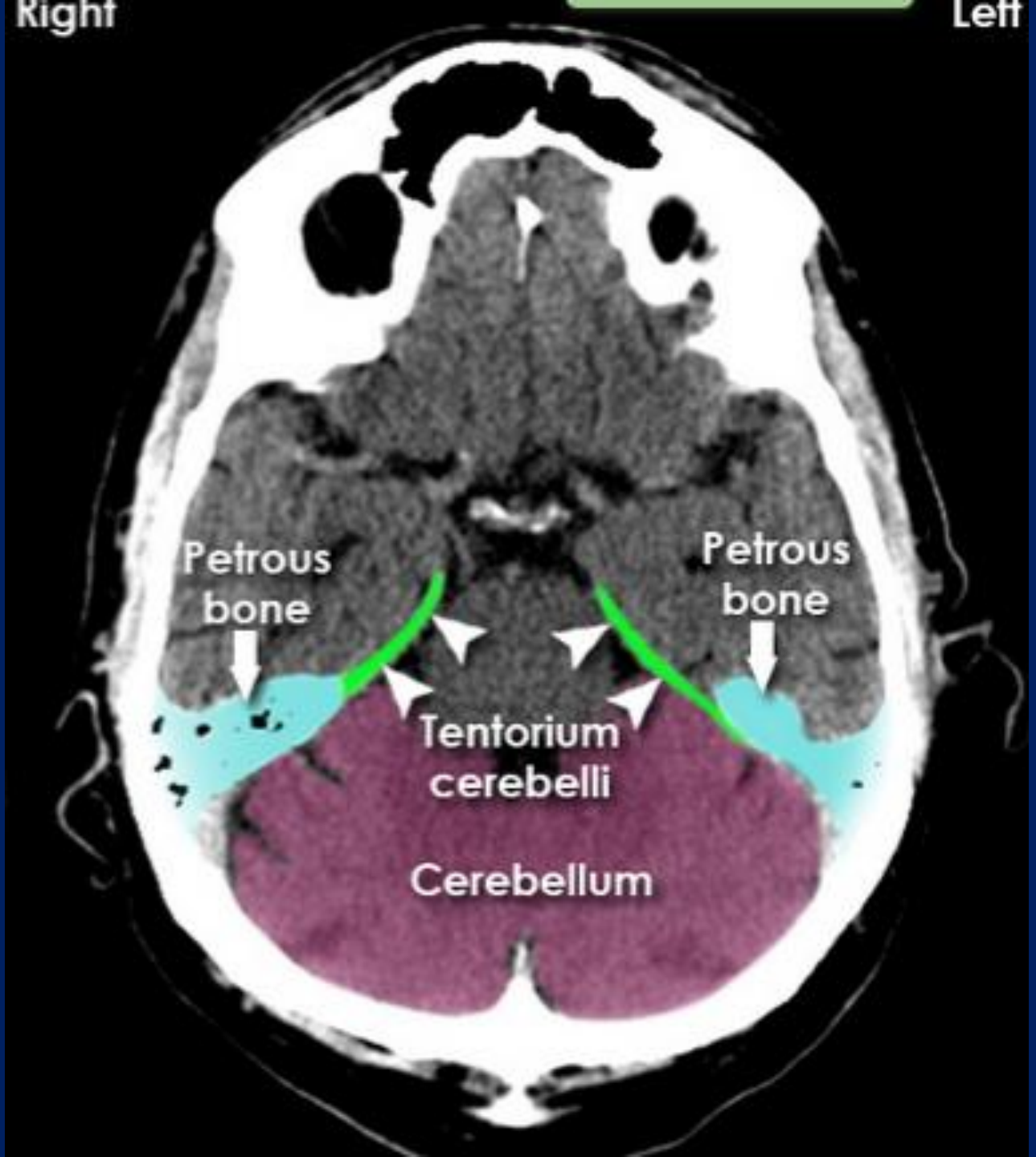
Cranial fossa
Different lobe
Brain stems
Mid brain
Pons
Medulla

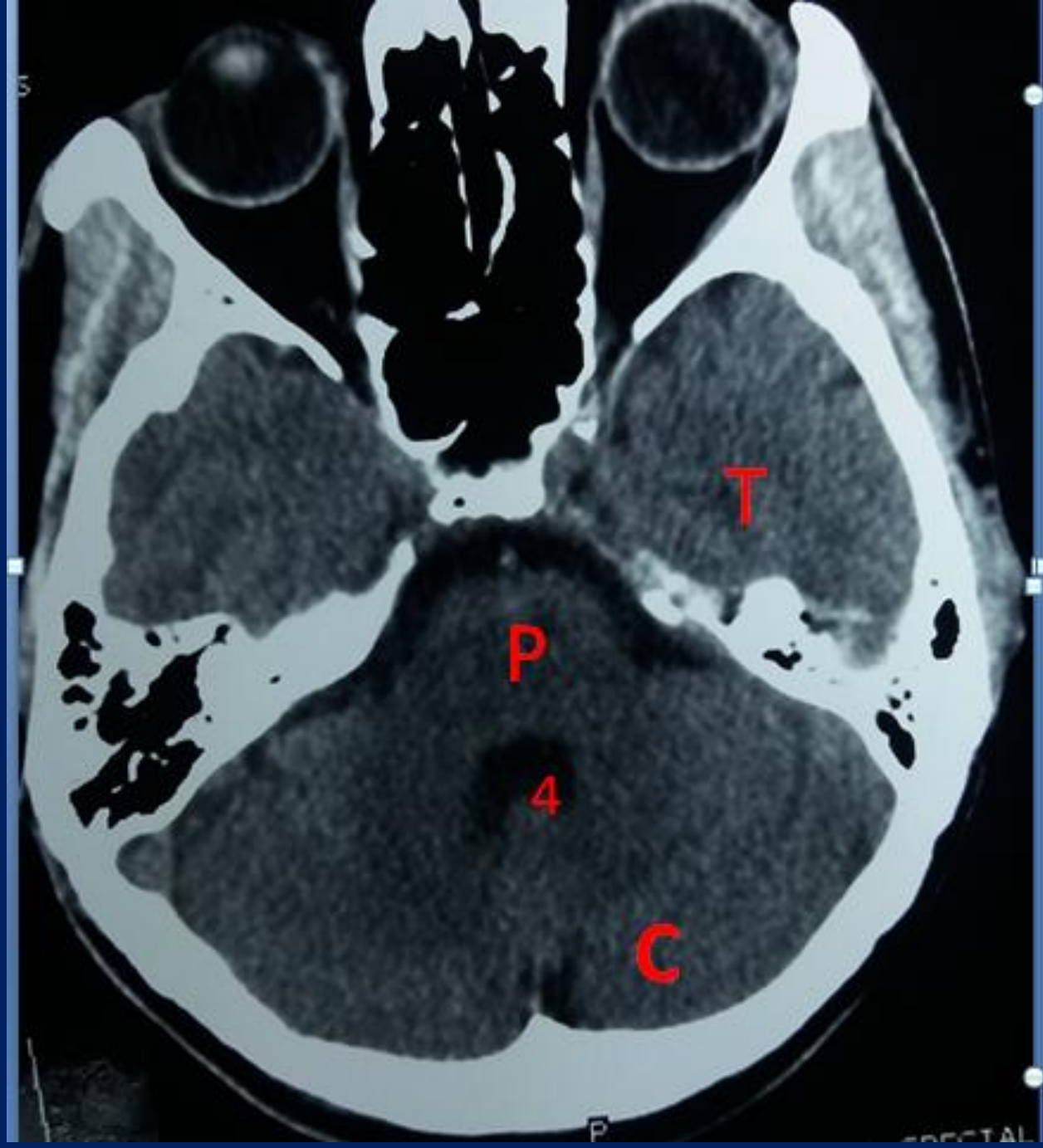

Anterior
cranial
fossa
Middle
cranial
fossa
PF
Middle
cranial
fossa
Posterior
cranial
fossa


BAR-50 YRS
Supria
W100
+43
FOV194
F 12
L
m
P
PRANTO SPECIALIZED HOSP.
21/05/2016

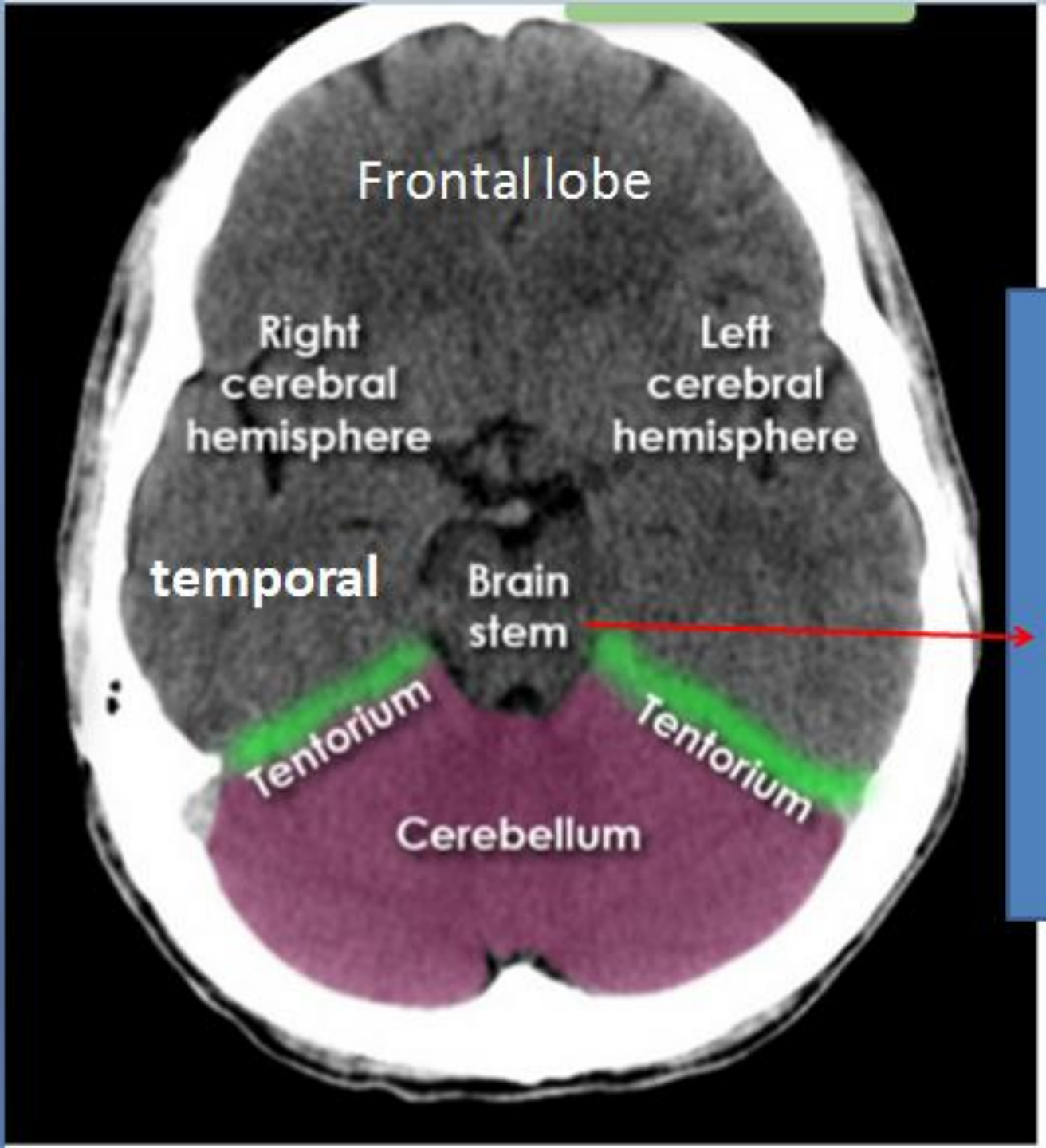
M--medulla


Pons
Cerebellum
Pons
Cerebellum

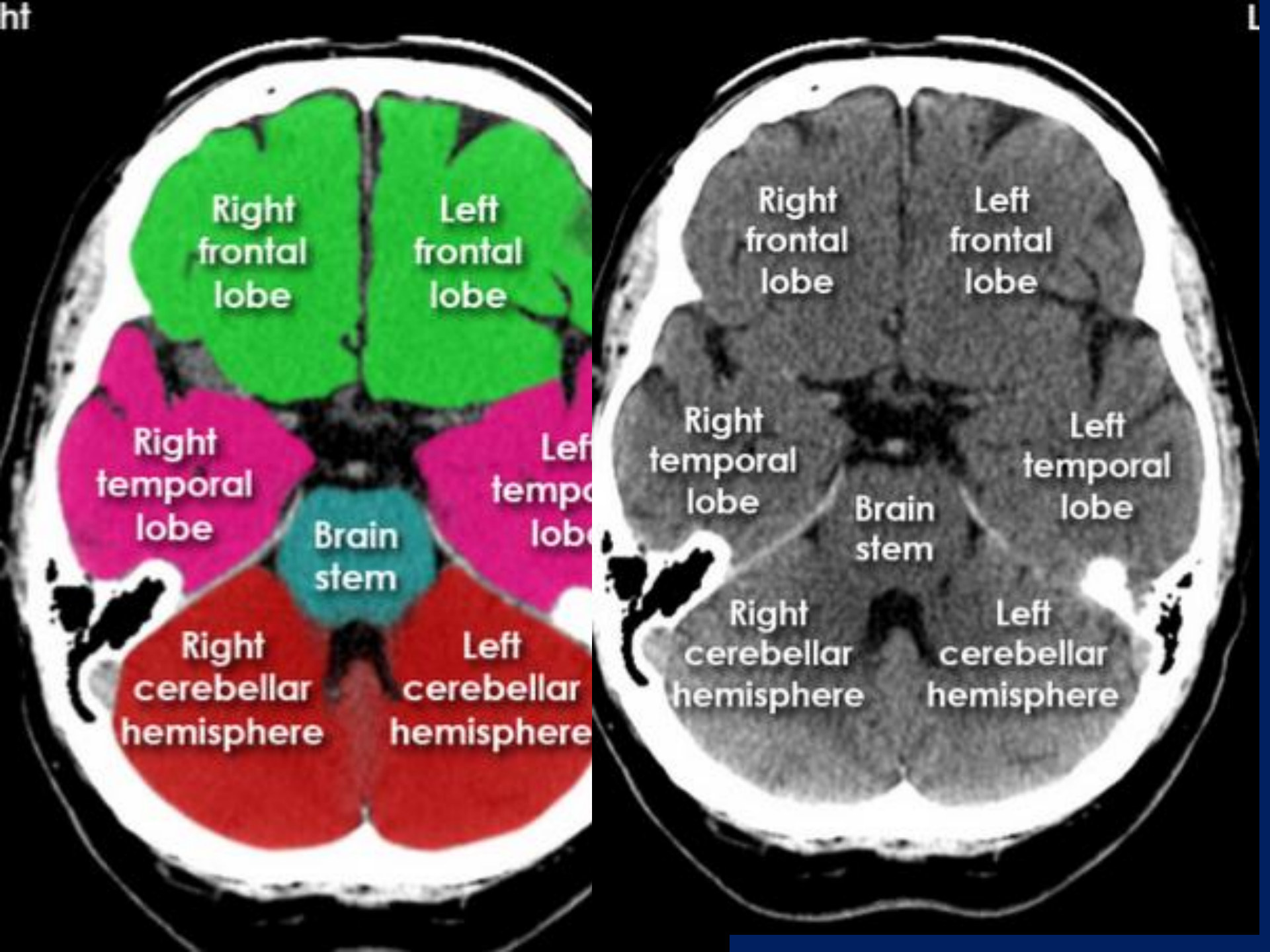

Right
Left
Petrous bone
Petrous bone
Tentorium cerebelli
Cerebellum

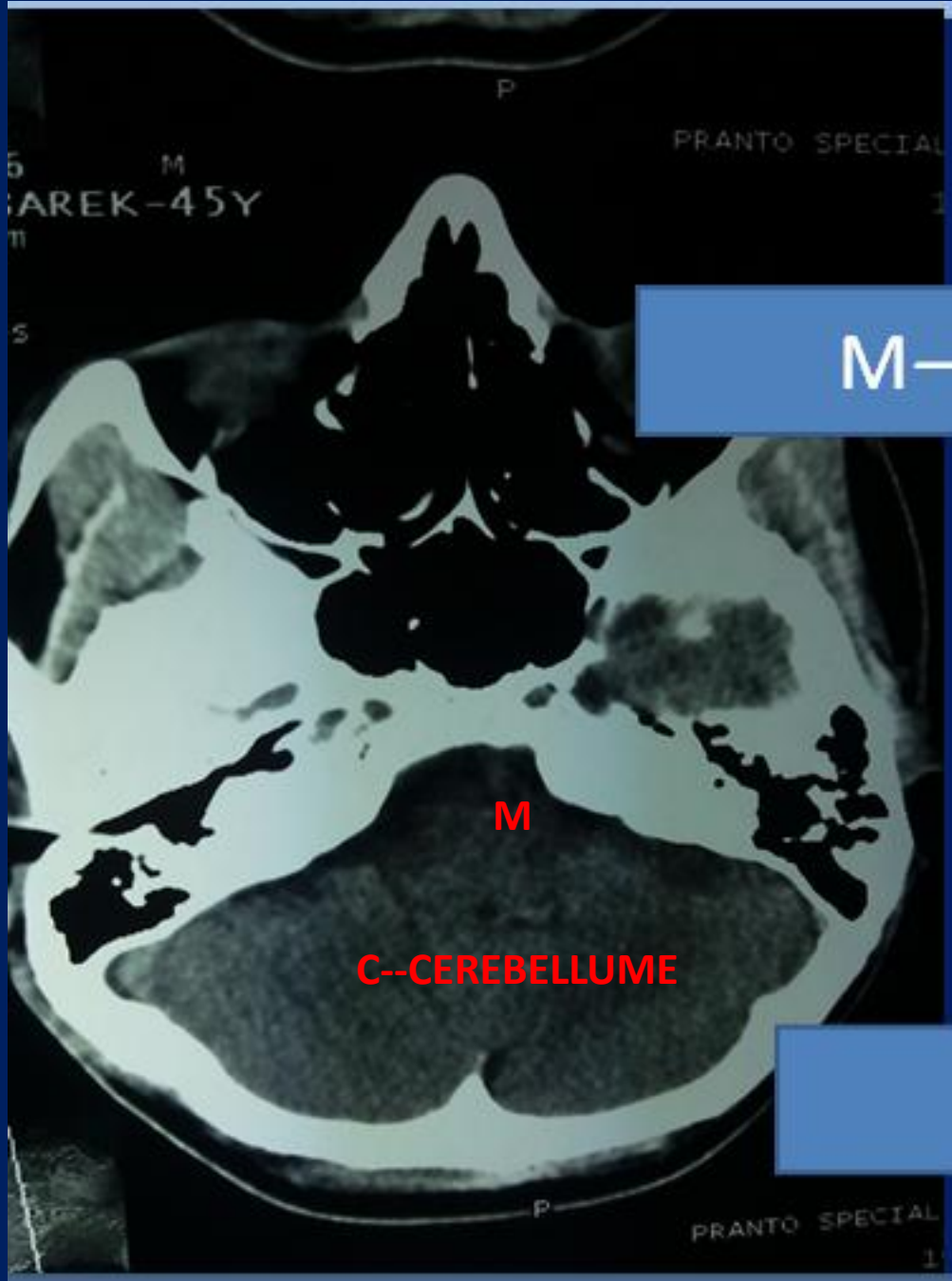


Could u indentify
Where is the
Pons (P)
Cerebellum (C)
Temporal lobe (T)
4th Ventricle (4)


Frontal lobe
Right cerebral hemisphere
Left cerebral hemisphere
temporal
Brain stem
Tentorium
Tentorium
Cerebellum

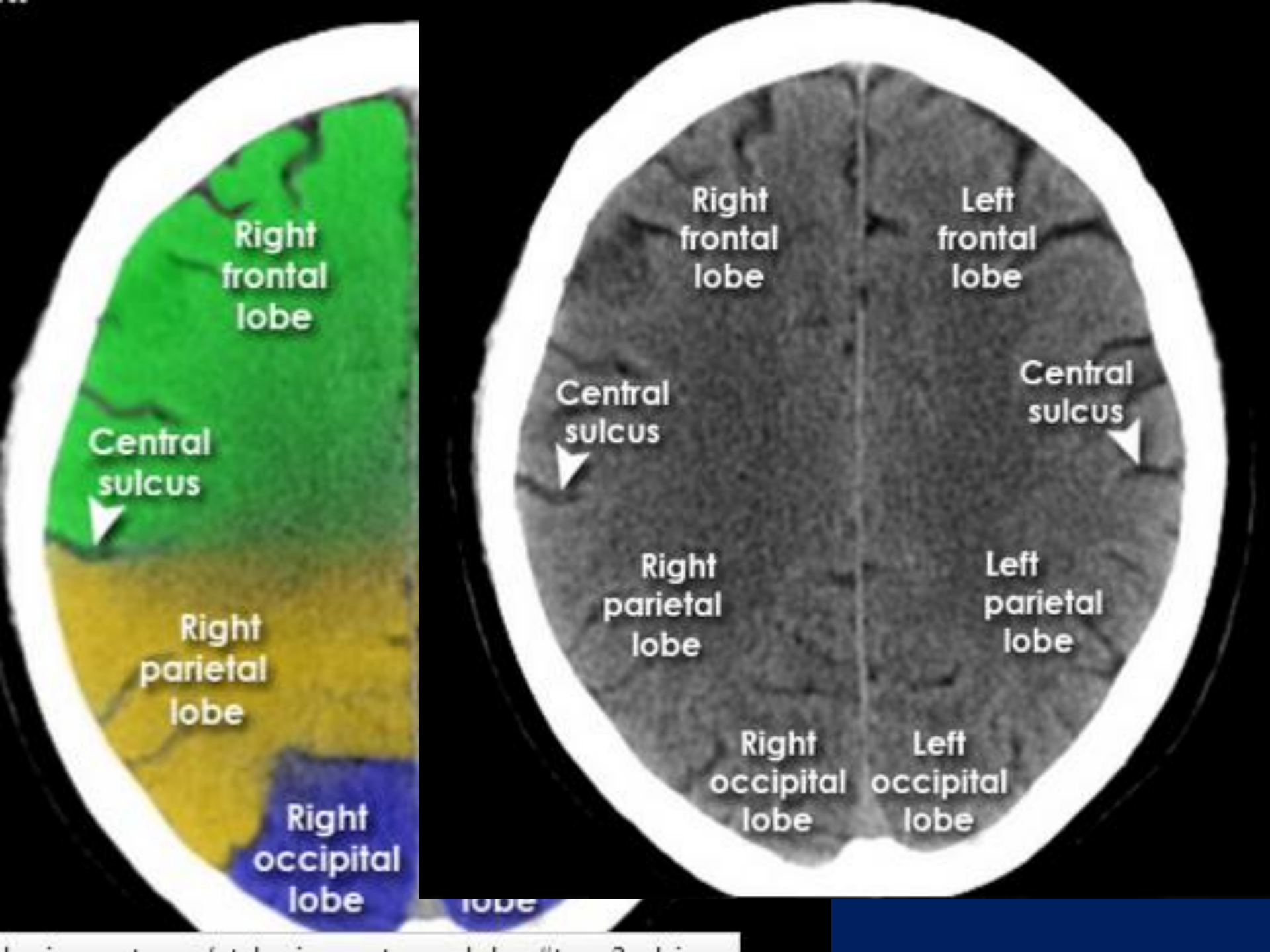
MID BRAIN


Right frontal lobe
Left frontal lobe
Right temporal lobe
Brain stem
Right cerebellar hemisphere
Left cerebellar hemisphere
Right frontal lobe
Left frontal lobe
Right temporal lobe
Brain stem
Left temporal lobe
Right cerebellar hemisphere
Left cerebellar hemisphere

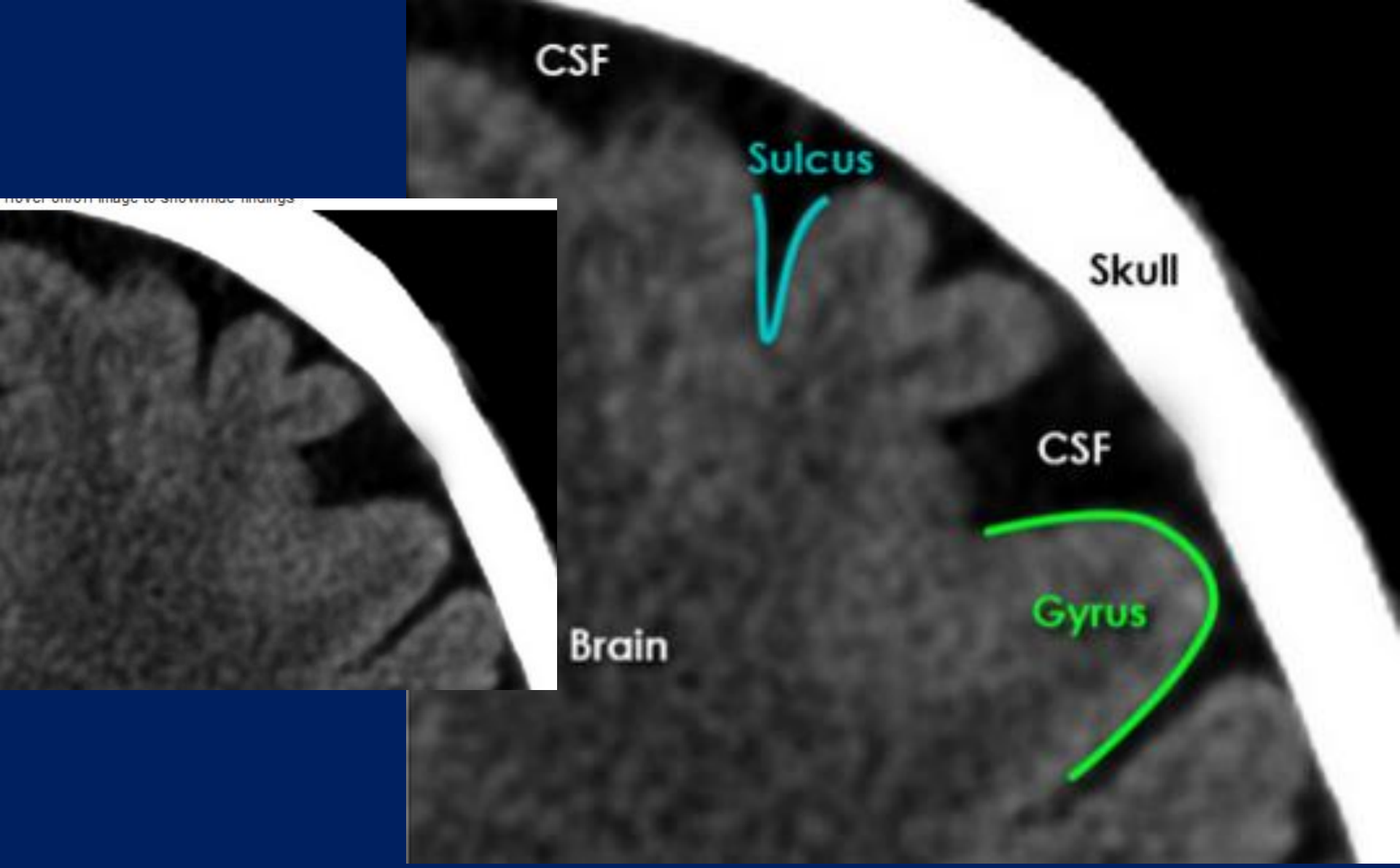


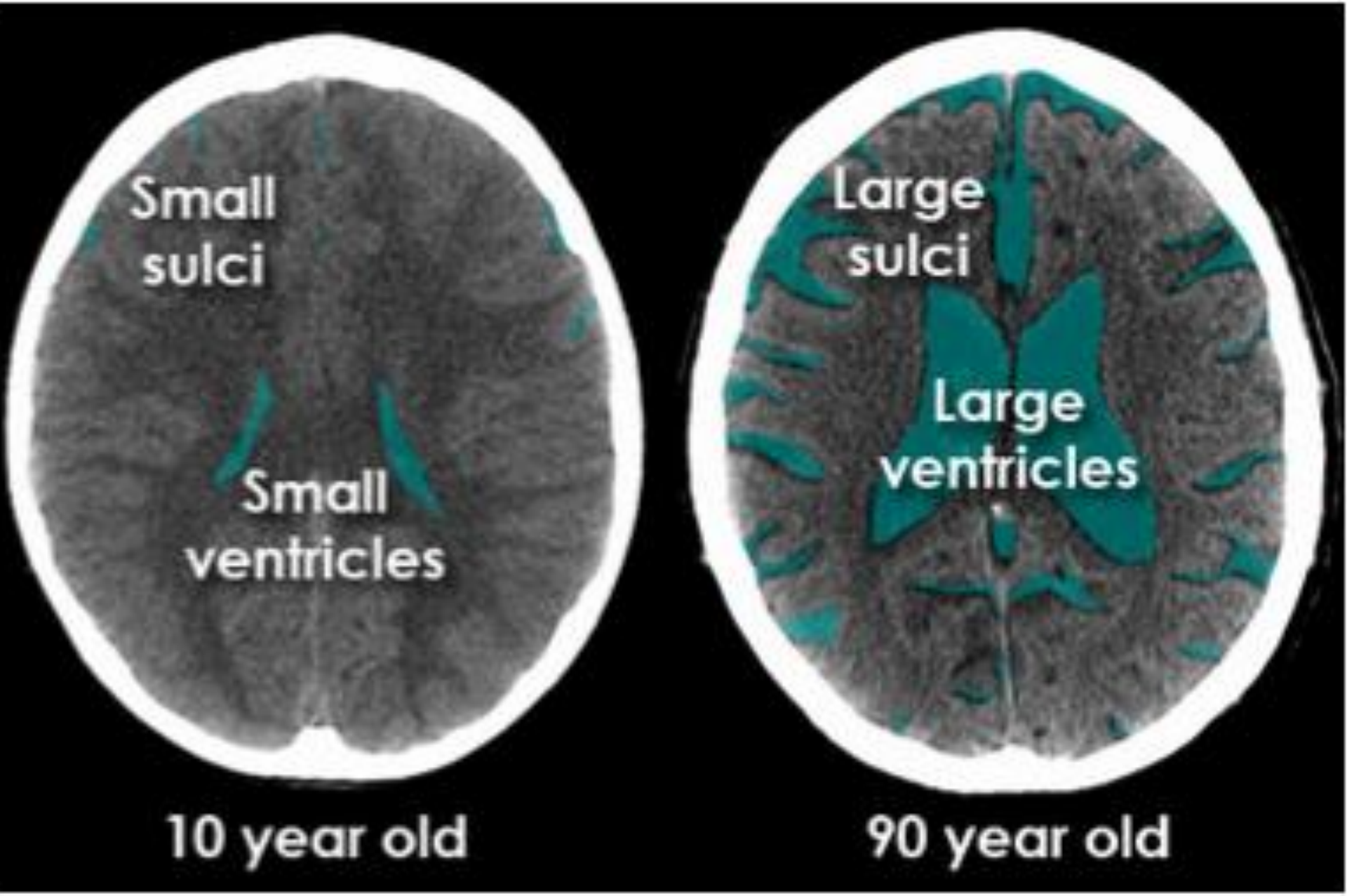
M—MEDULLA

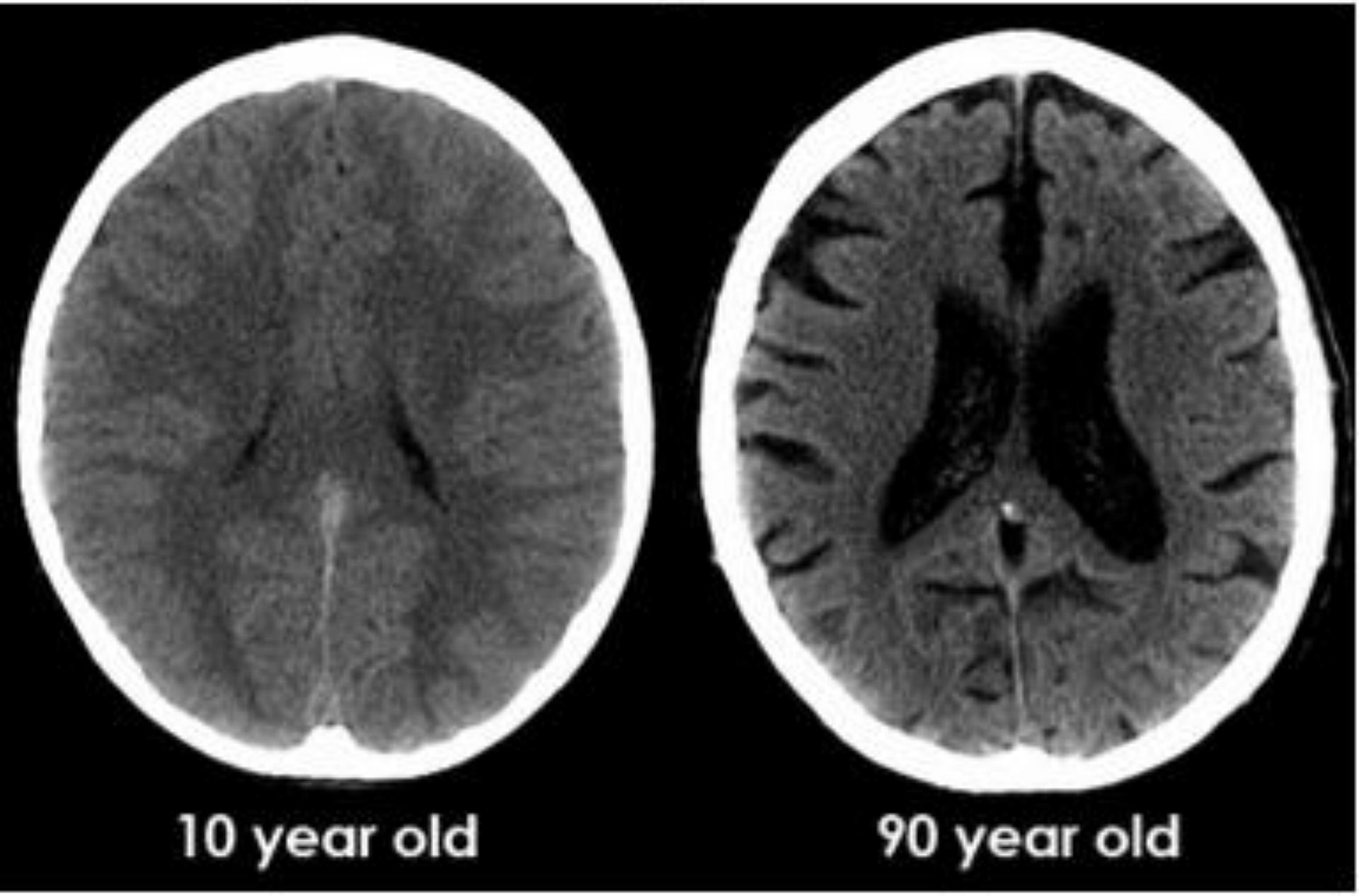
C—crerbellum

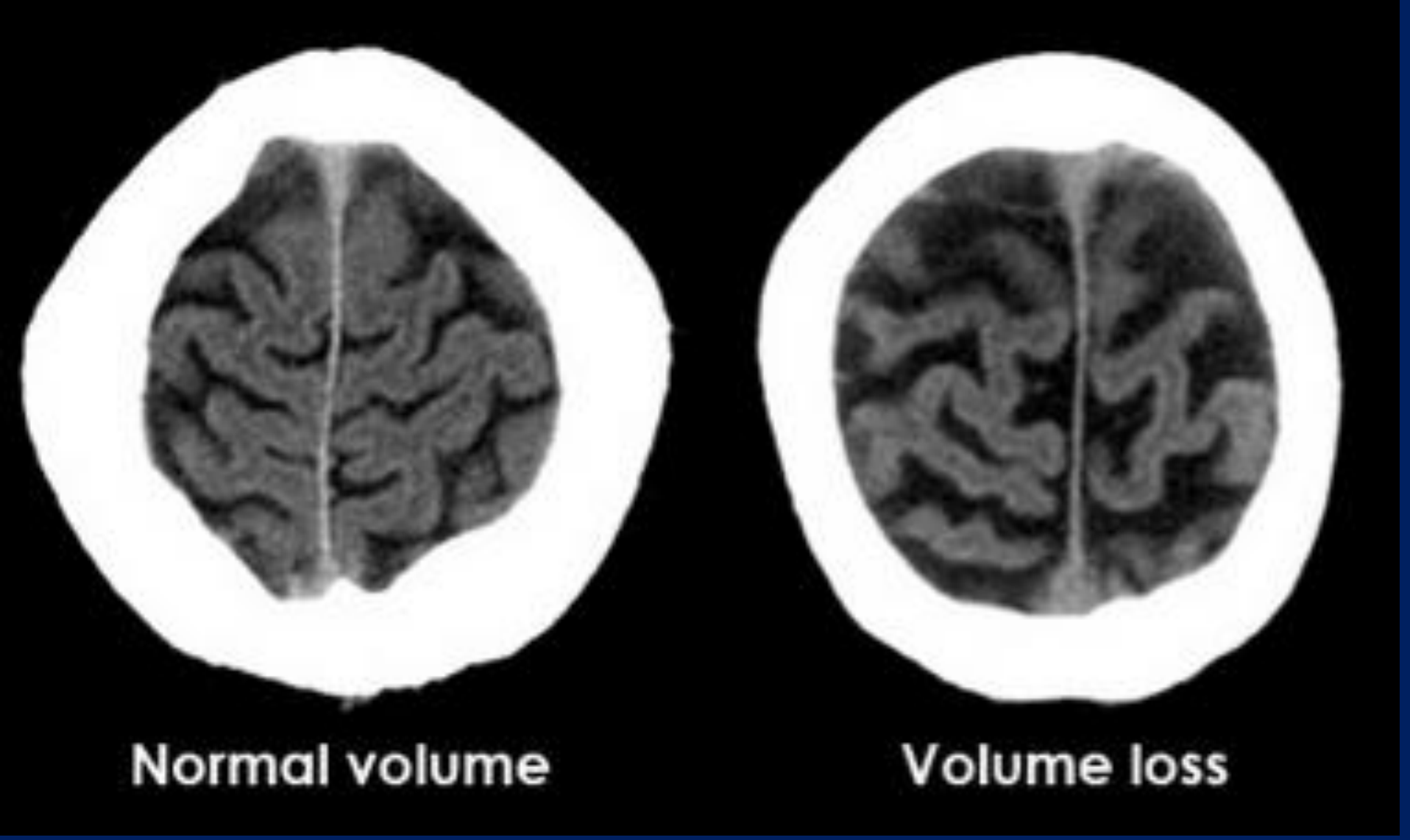

Right frontal lobe
Central sulcus
Right parietal lobe
Right occipital lobe
Right frontal lobe
Left frontal lobe
Central sulcus
Central sulcus
Right parietal lobe
Left parietal lobe
Right occipital lobe
Left occipital lobe

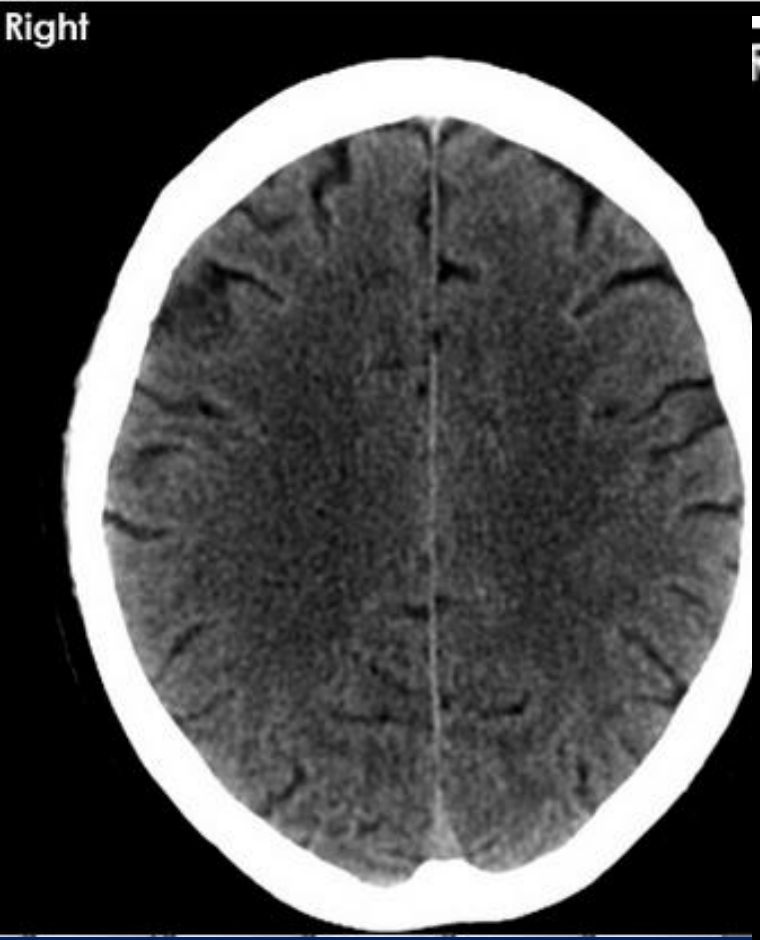

Sulcus
Gyrus

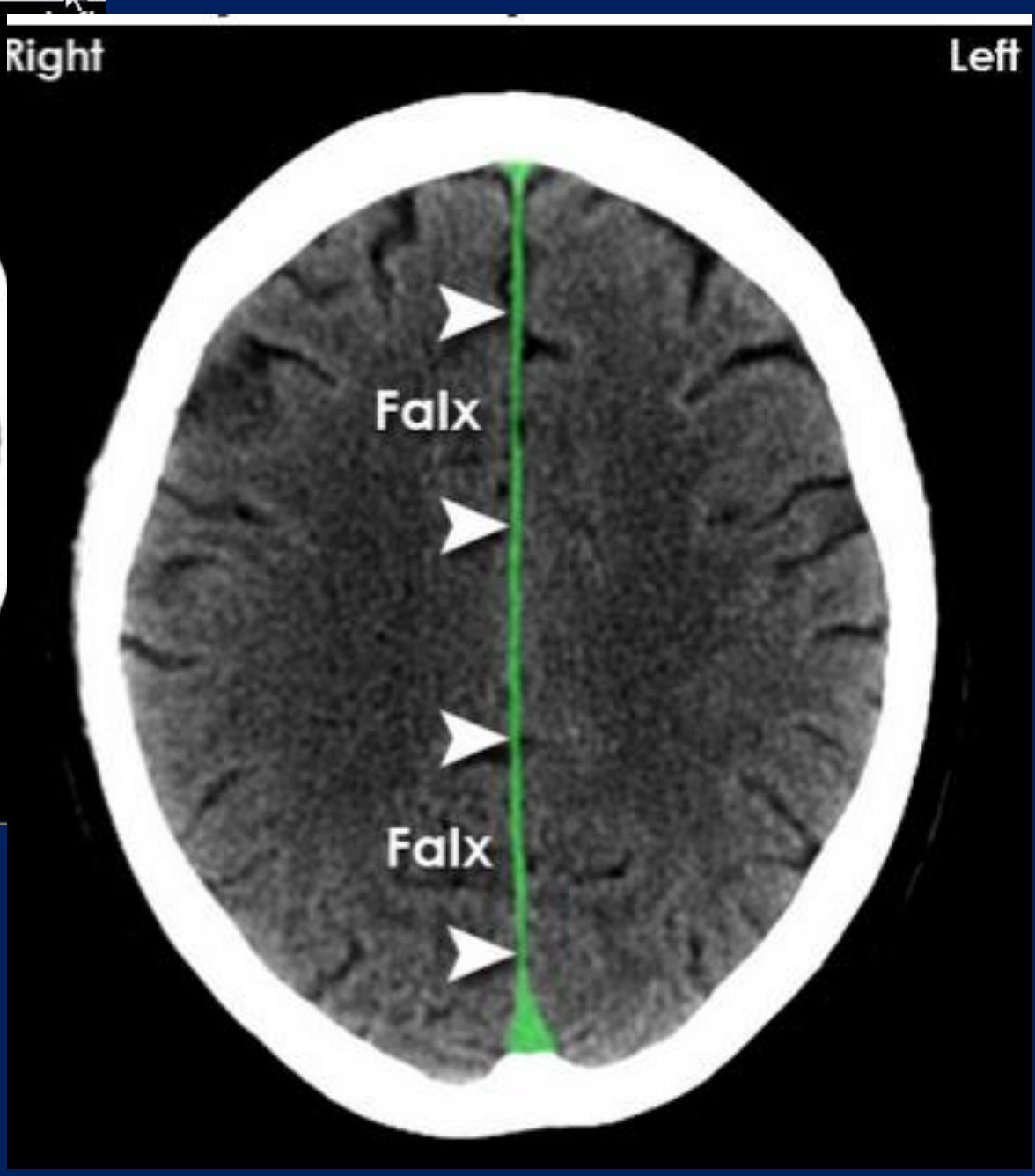

CSF
Sulcus
Skull
CSF
Gyrus
Brain

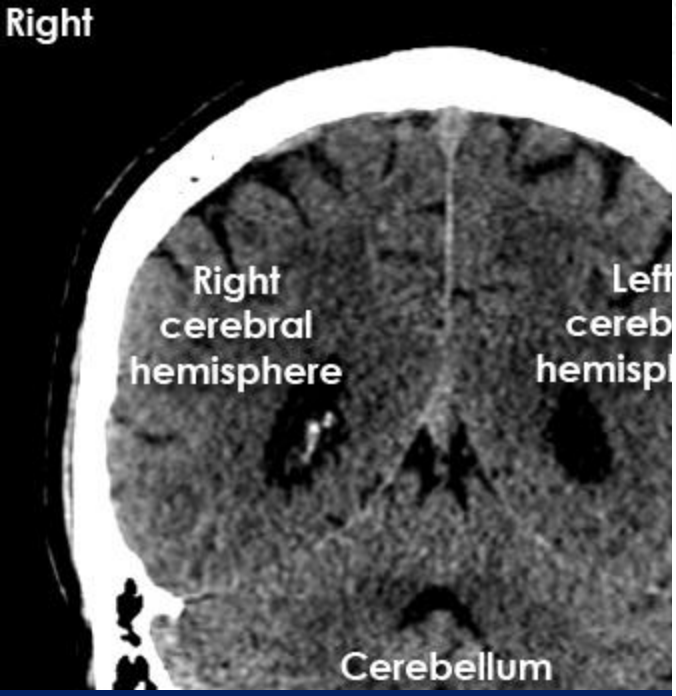

Small
sulci
Small
ventricles
10 year old
Large
sulci
Large
ventricles
90 year old

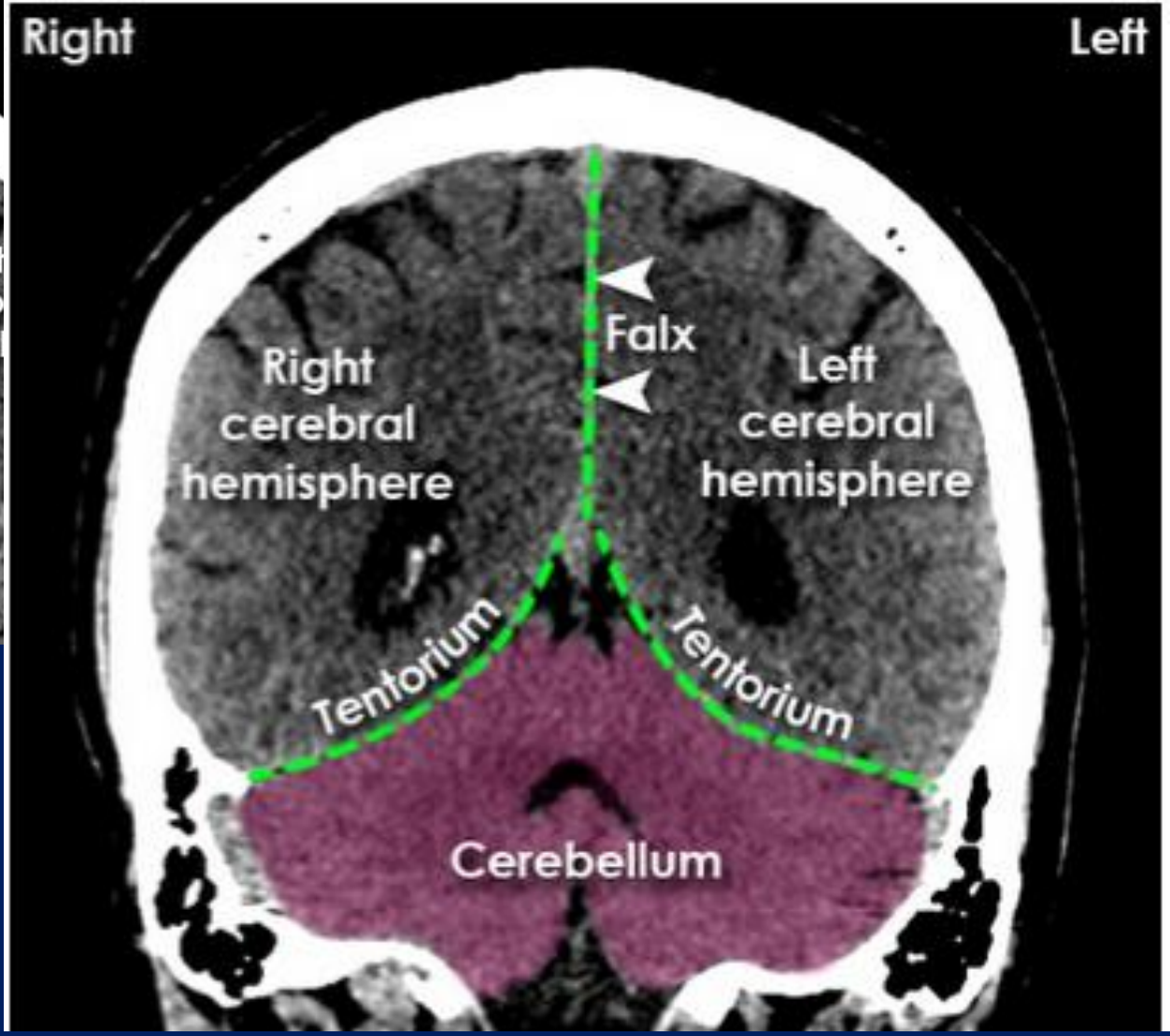

10 year old
90 year old

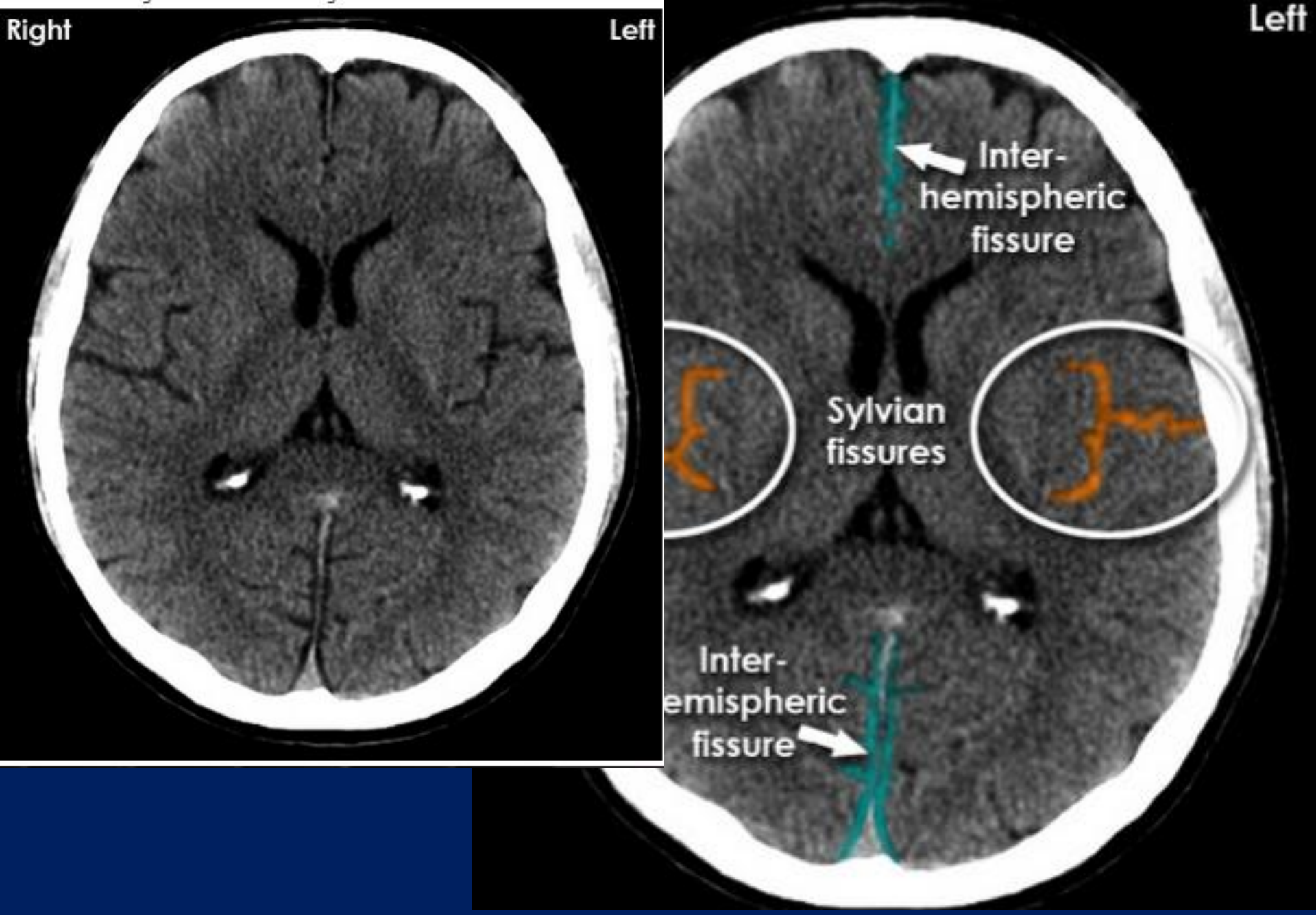

Normal volume
Volume loss


Right


Right
Left
Falx
Falx


Right
Right cerebral hemisphere
Left cereb hemispl
Cerebellum


Right
Left
Falx
Right cerebral hemisphere
Left cerebral hemisphere
Tentorium
Tentorium
Cerebellum


Right
Left
Left
Inter-
hemispheric
fissure
Sylvian
fissures
Inter-
emispheric
fissure

Sylvian sulcus

Third ventricle

Occipital horn of 4th ventricle

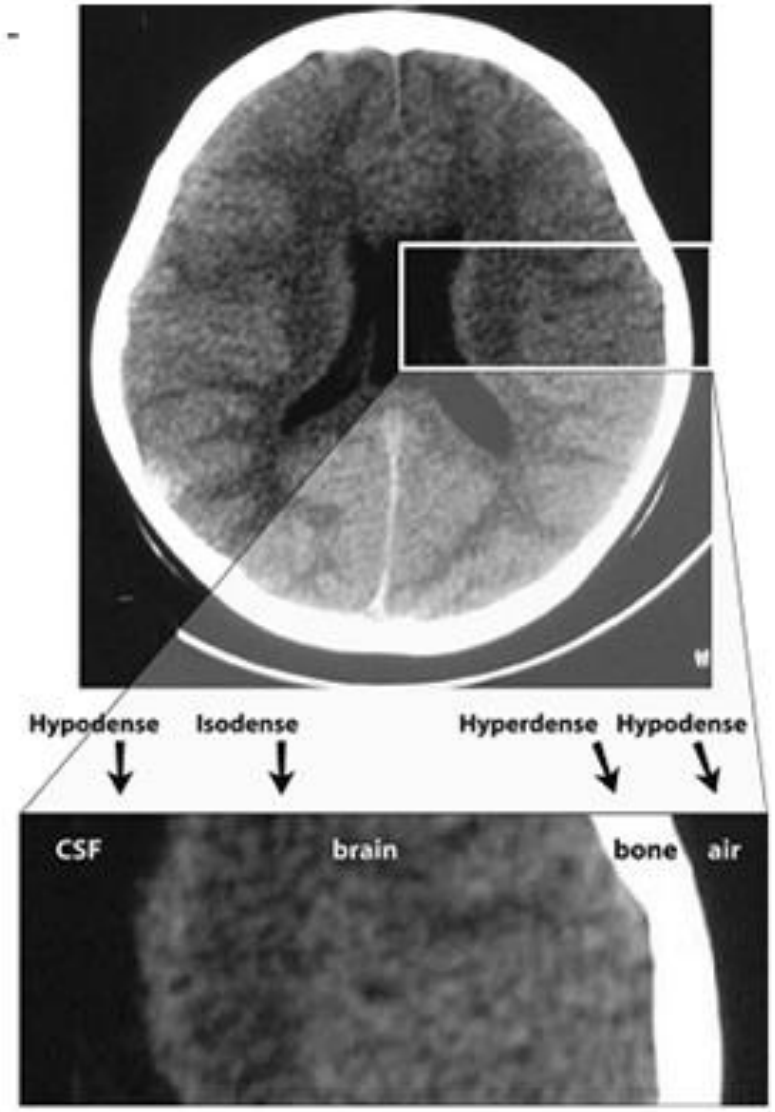
CT scan of brain

It has 3 densities

iso dens –brain

Hypo dens ---CSF

Hyper dense ---bone



Here density means = whiteness

Hypo dens = is black

Normally found in CSF

Abnormally is infarction

Peri lesional edema

Hyper density = bright white

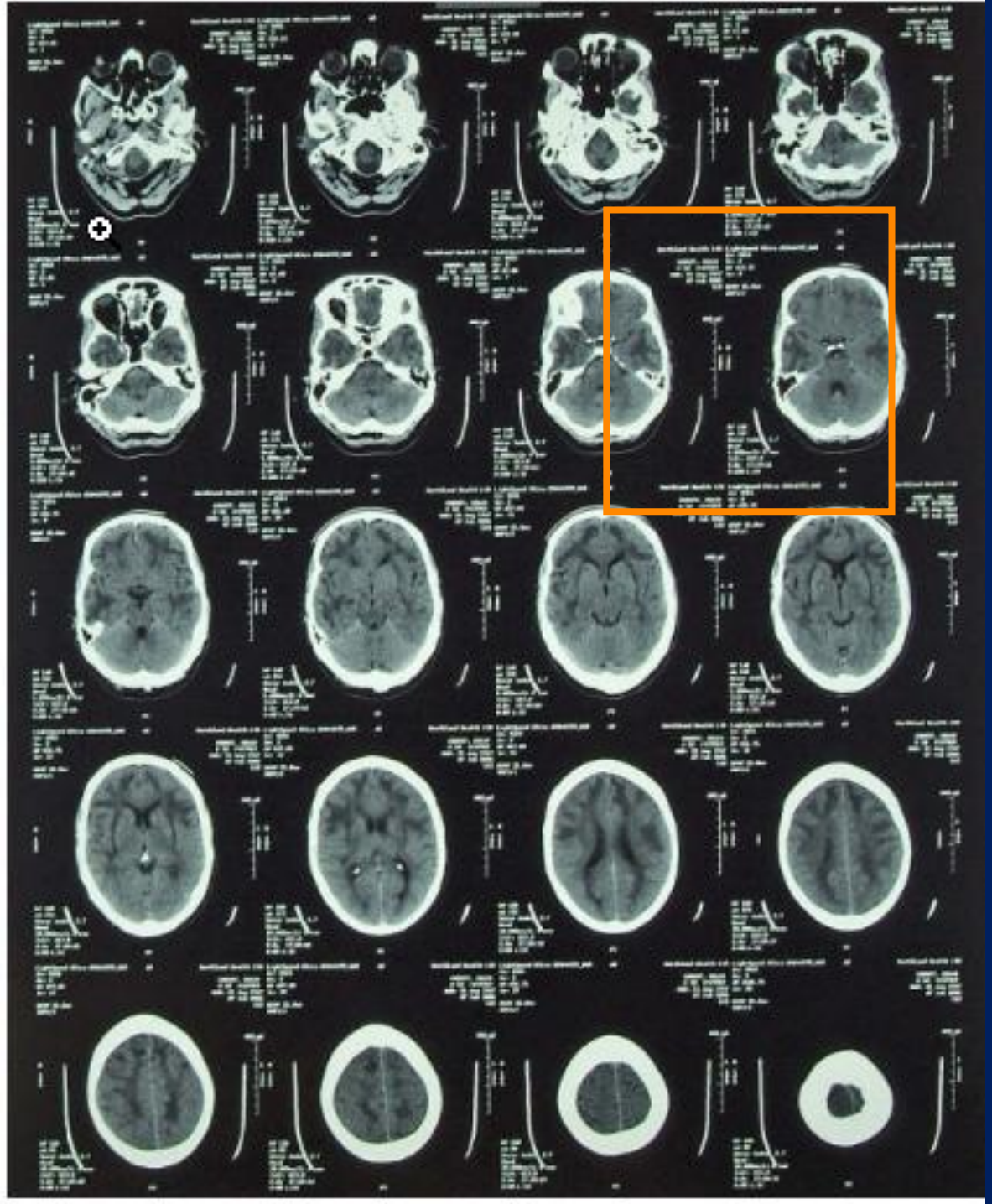
Normally found in the bone / calcification

Abnormally hemorrhage

Iso-dens= it is the colour in between black@ White

Normally brain matter

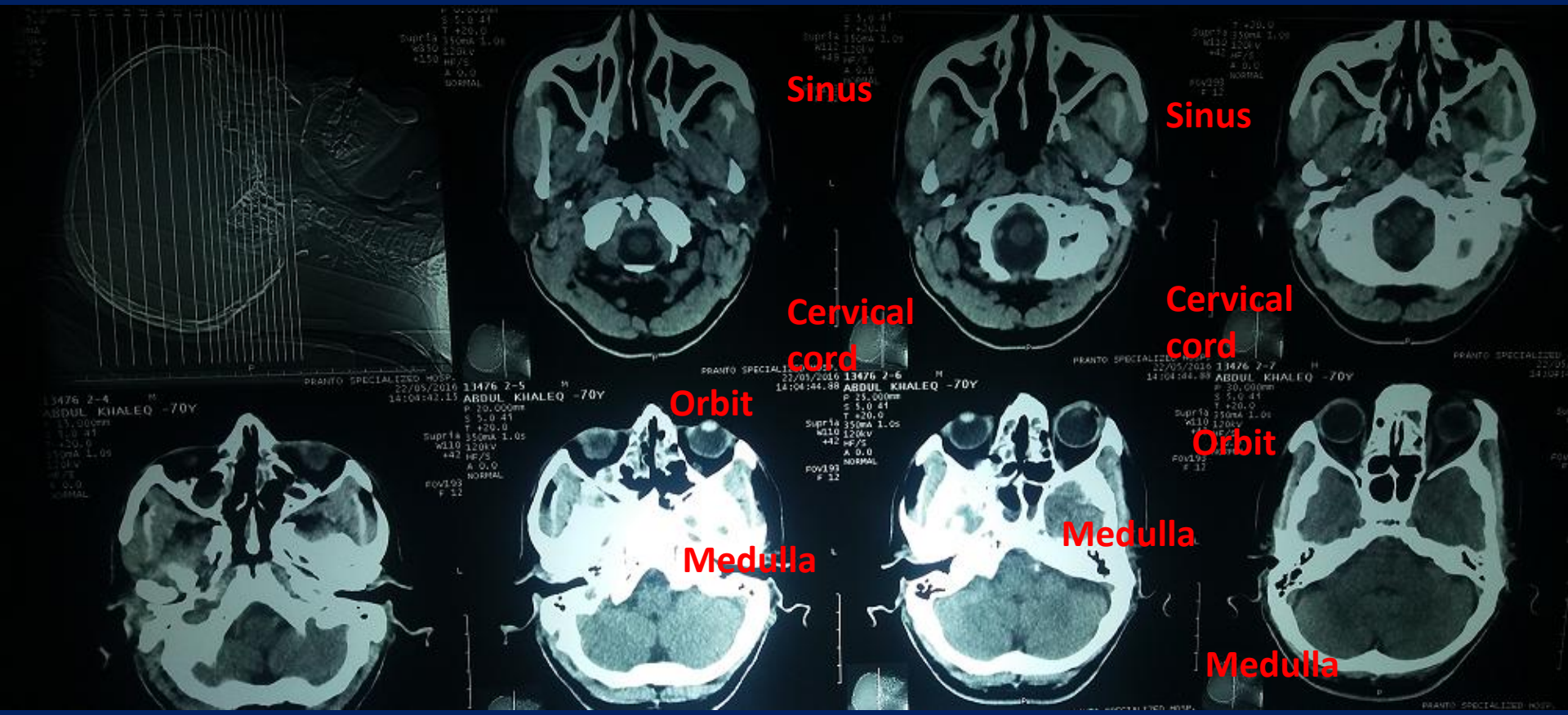
Rule of thumb is that‘ anything White in the CT scan is either blood or bone’.



Identify the all the structure of CT-scan Window by Window

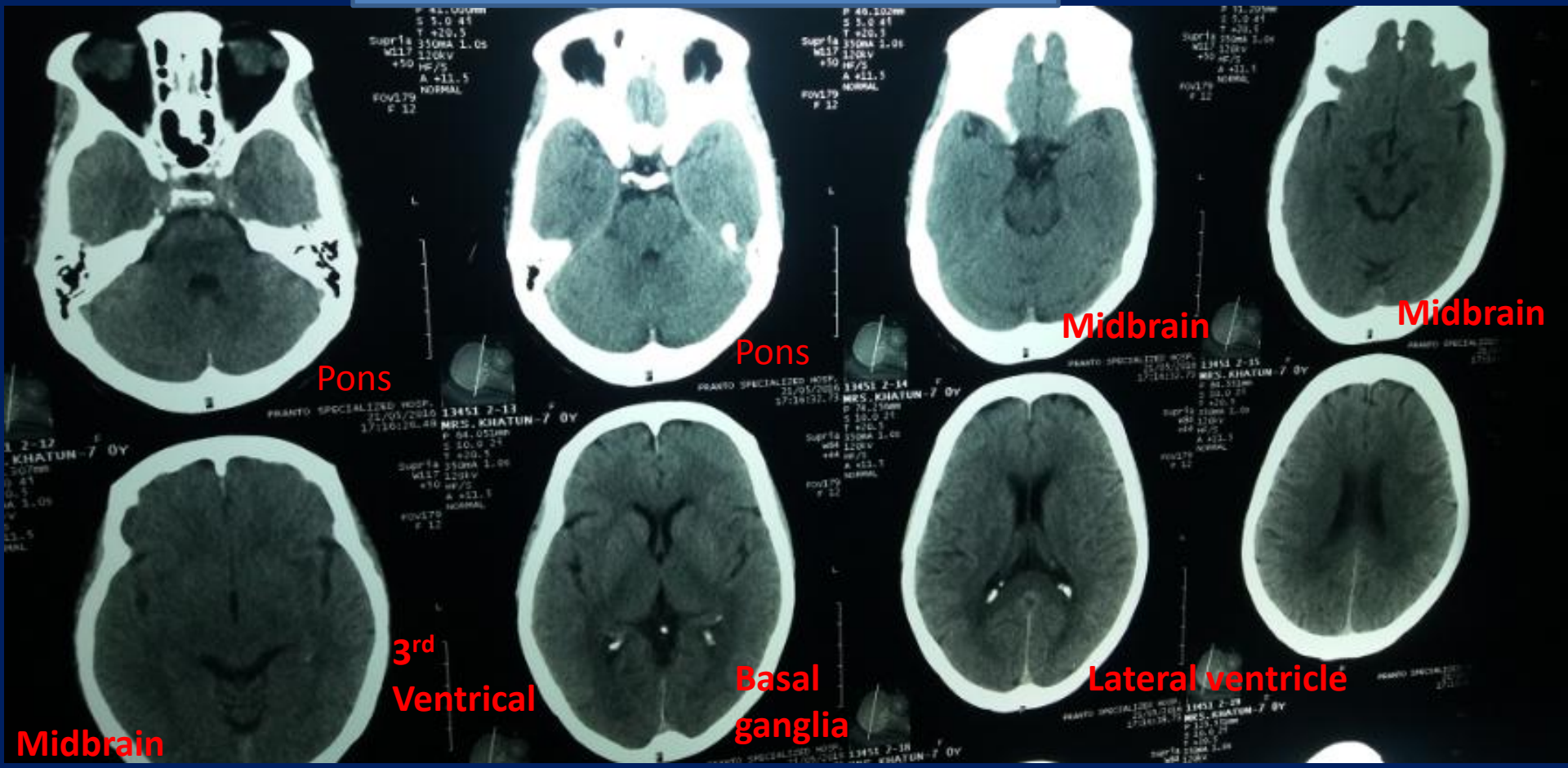
CT scan have 5 row
Each row have 4 window
Start from section image of skull first
Then ascend bottom to top
Such as cervical cord → medulla →Pons → mid brain --

First row | Second row



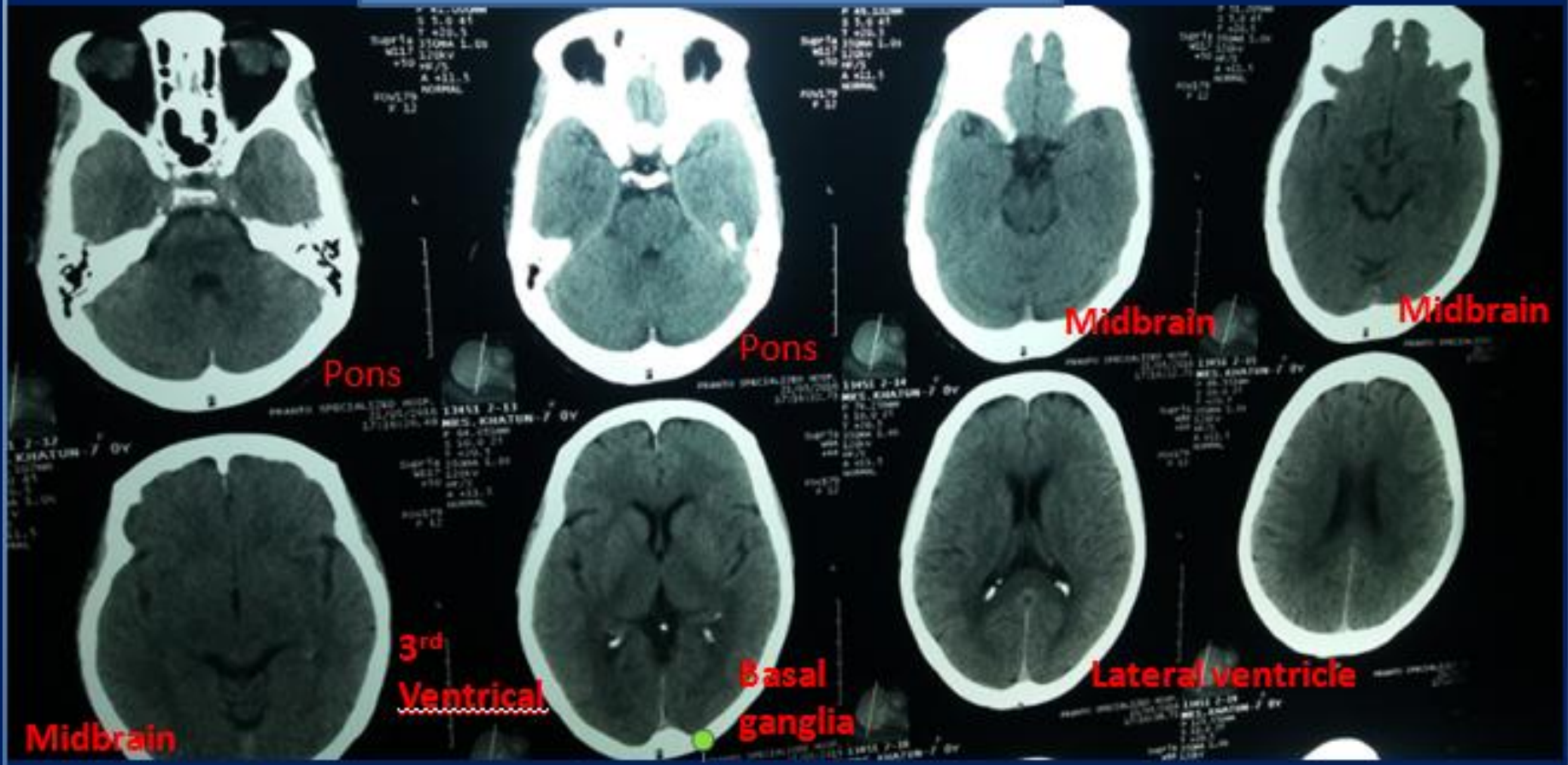
Level of cross-section

3rd & 4th row



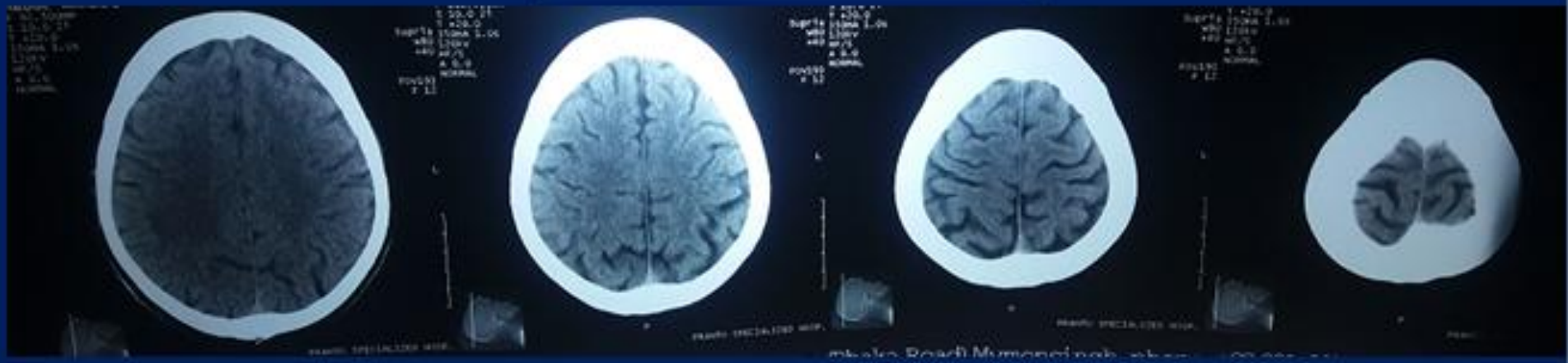
Level of cross-section

3rd row

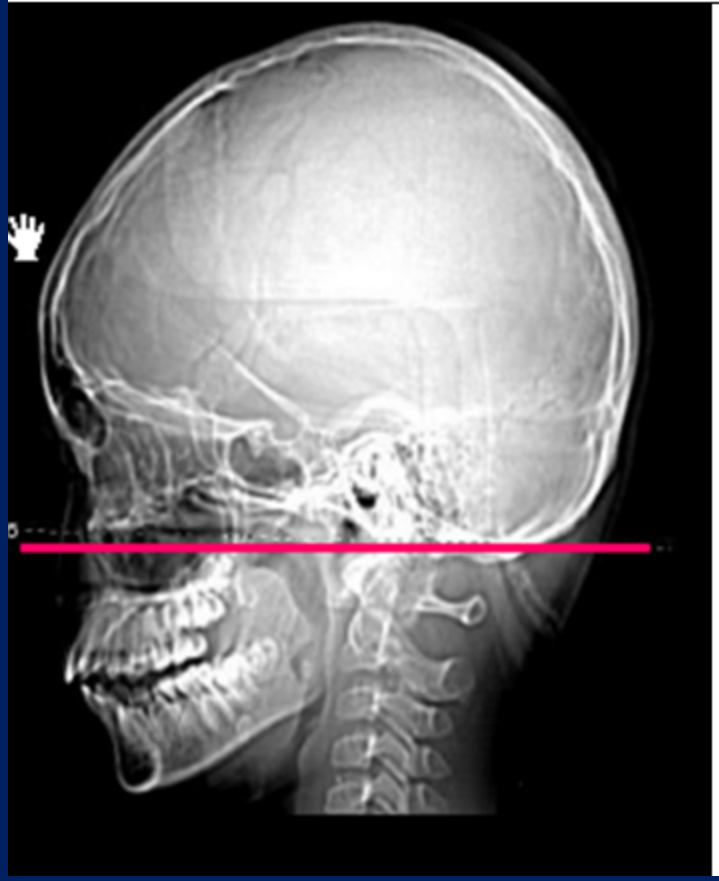


Level of cross-section

Fifth row



Level of cross-section



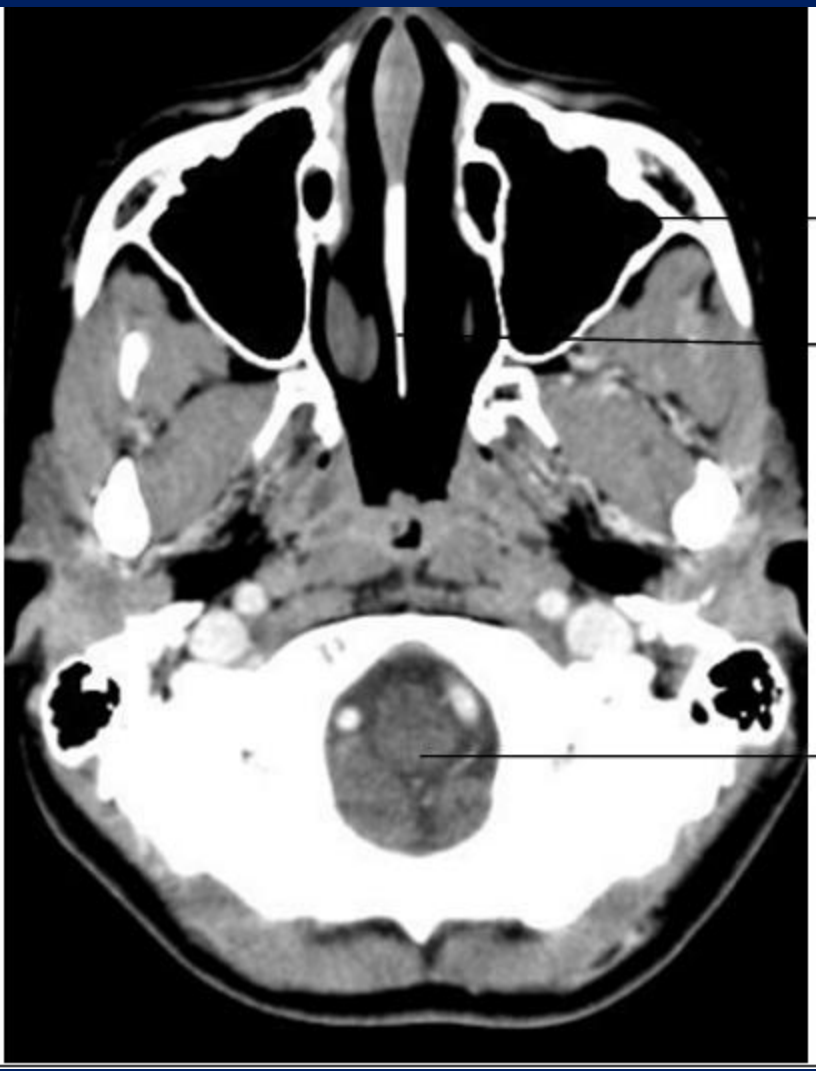
- This is the first slide of CT scan
- Its show at which level image are taken
- It helps in side detection of CTscan film
- During reading CT scan keep it on the to and left side
- u hold the CT scan film with left thumb and index finger at this photo the CT sca

will side will be automatically normal

Maxillary sinus

Nasal septum

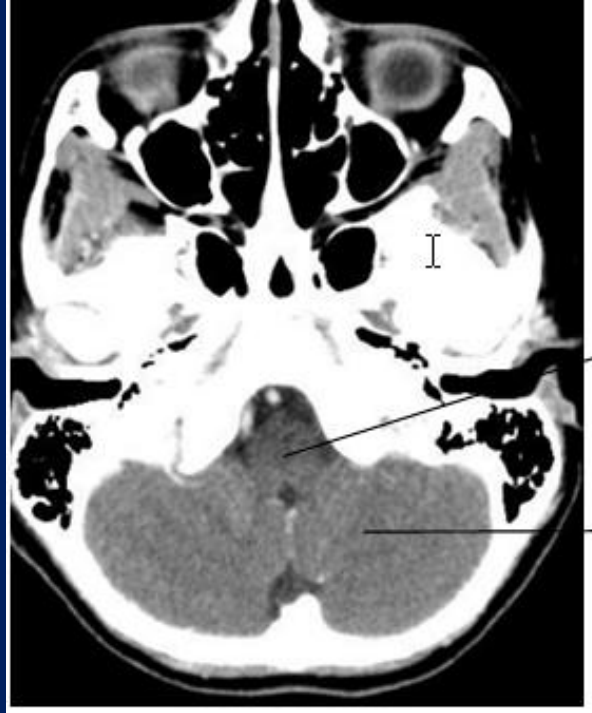
Cervico medullary junction



Maxillary sinus

Nasal septum

Cervico medullary junction



Medulla

Cerebellum

Medullla

Cerebellum

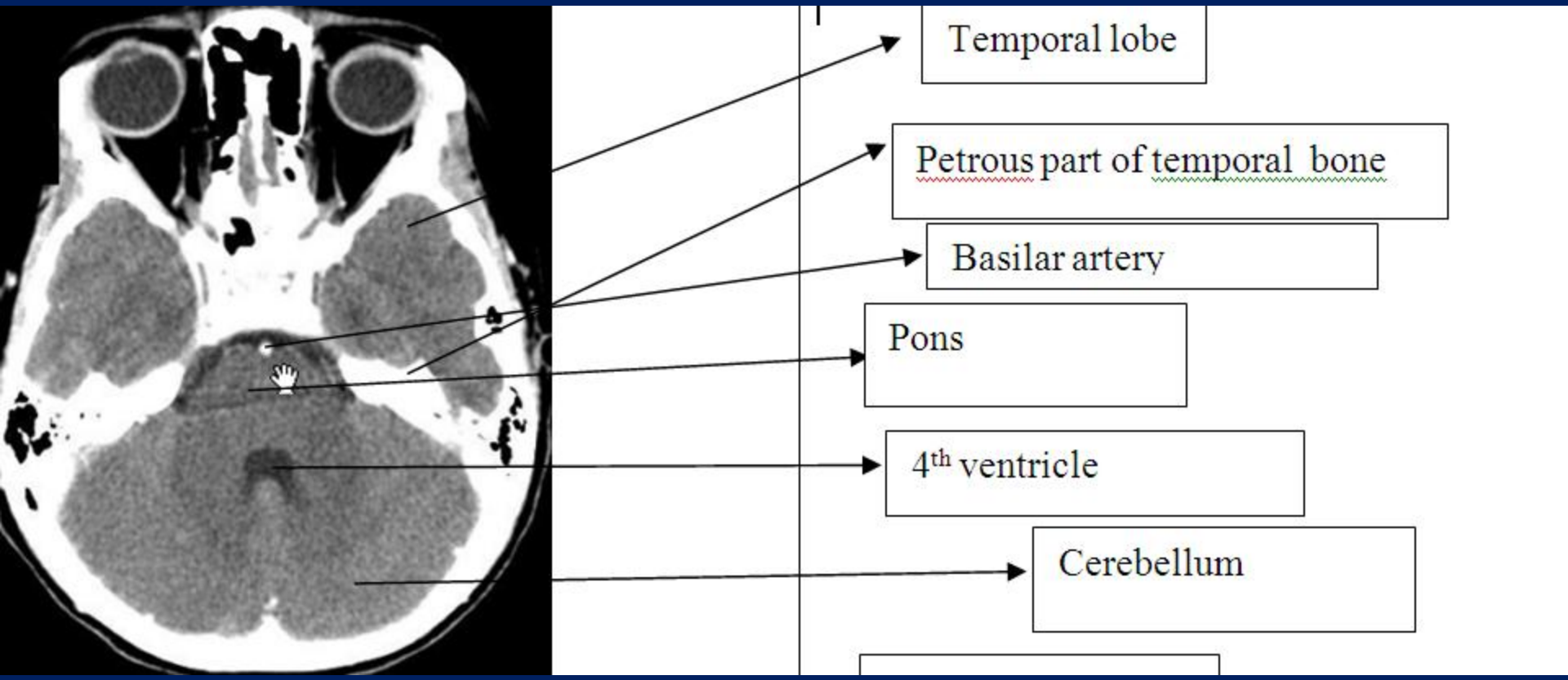
Temporal lobe

Petrous part of temporal bone . when this will b disappear in CT slide then will think that u have passed way cerebellum and temporal lobe and entered into parietal and occipital lobe

Pons

4th ventricle, fish mouth appearance.

Cerebellum


Temporal lobe
Petrous part of temporal bone
Basilar artery
Pons
4th ventricle
Cerebellum

Orbit and eye ball

Sellar tursica

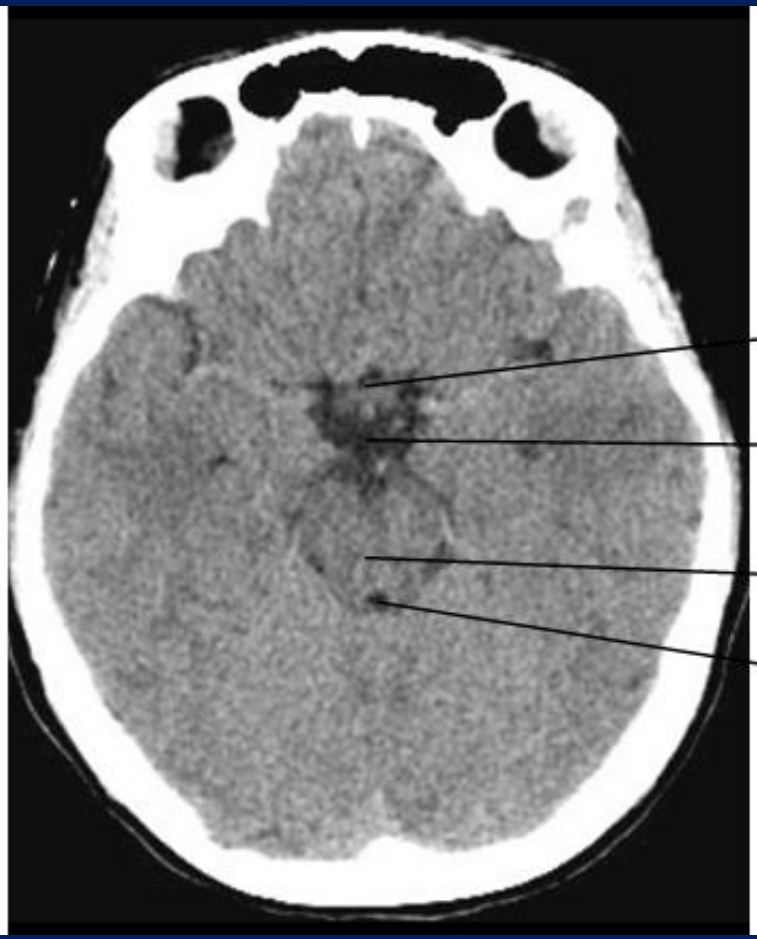
Temporal lobe

Petrous part of temoporal lobe

Pons

4th ventricle

Cerebellum



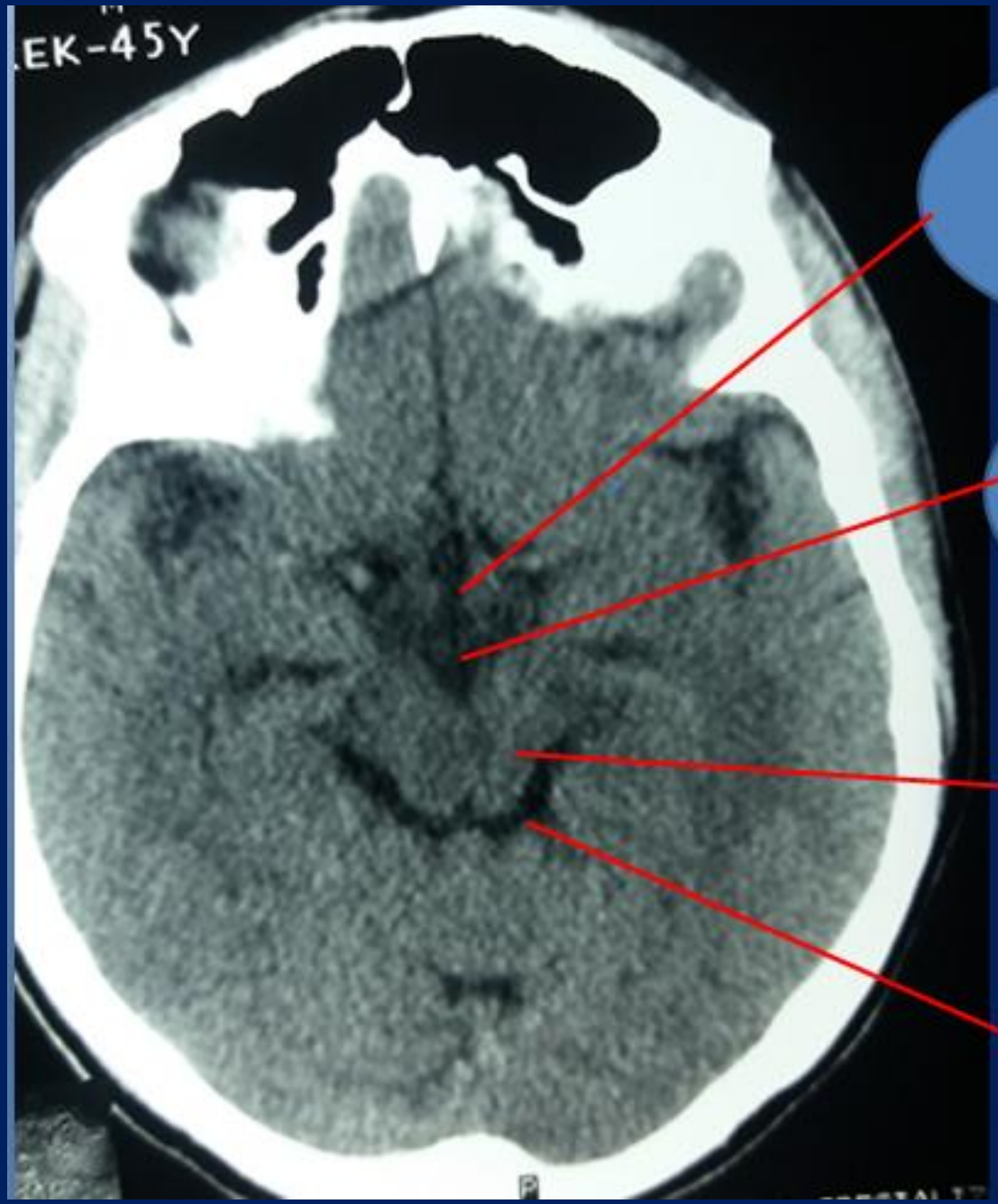
Here petrous part of temp bone is absent so no cerebellum and temporal lobe

Infundibulum

Suprasellar cistern

Mid brain

Cerebral aqueduct

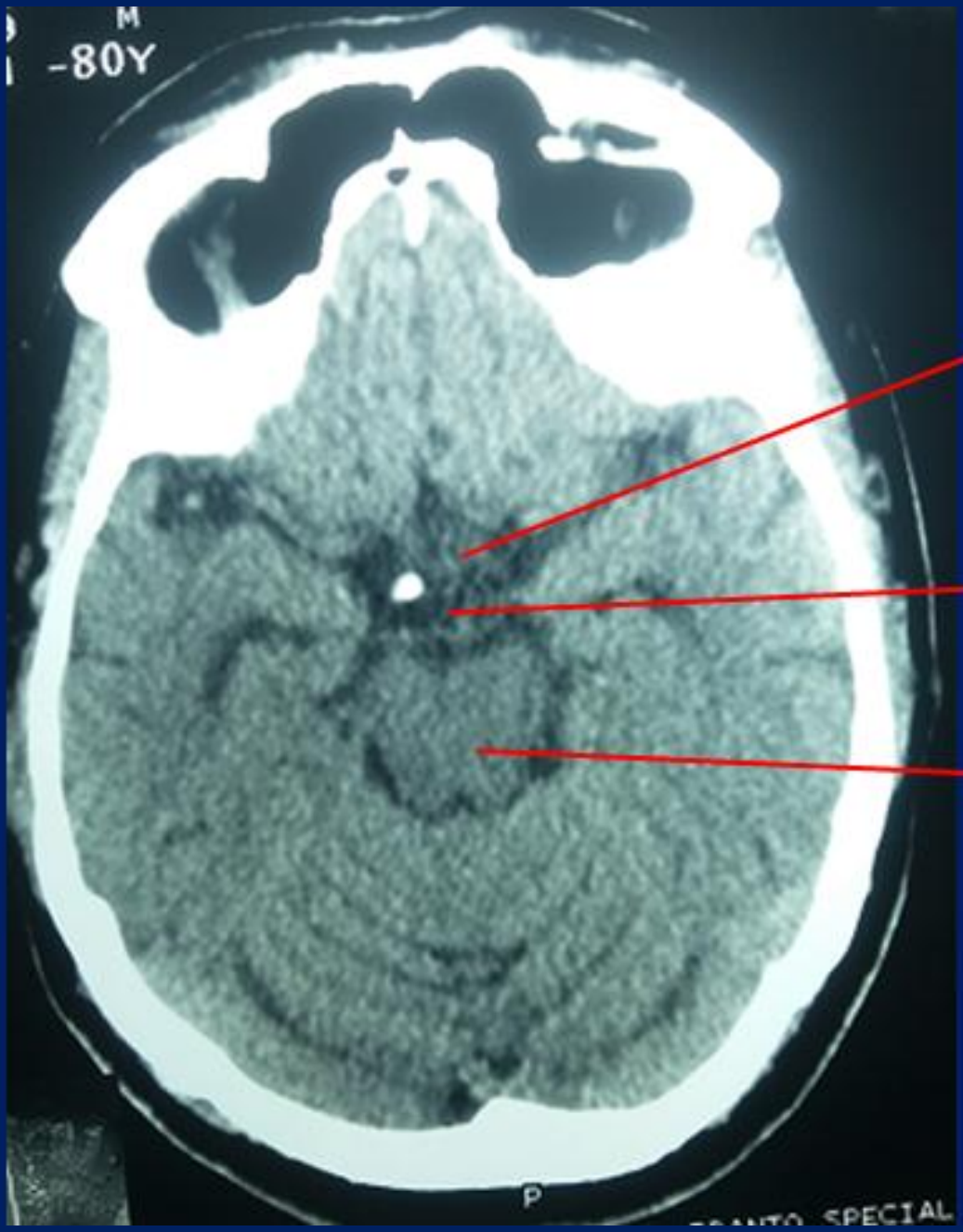


Infundibulum

Suprasaller cistern

Mid brain

Quadrigimini cistern



Infundibulam

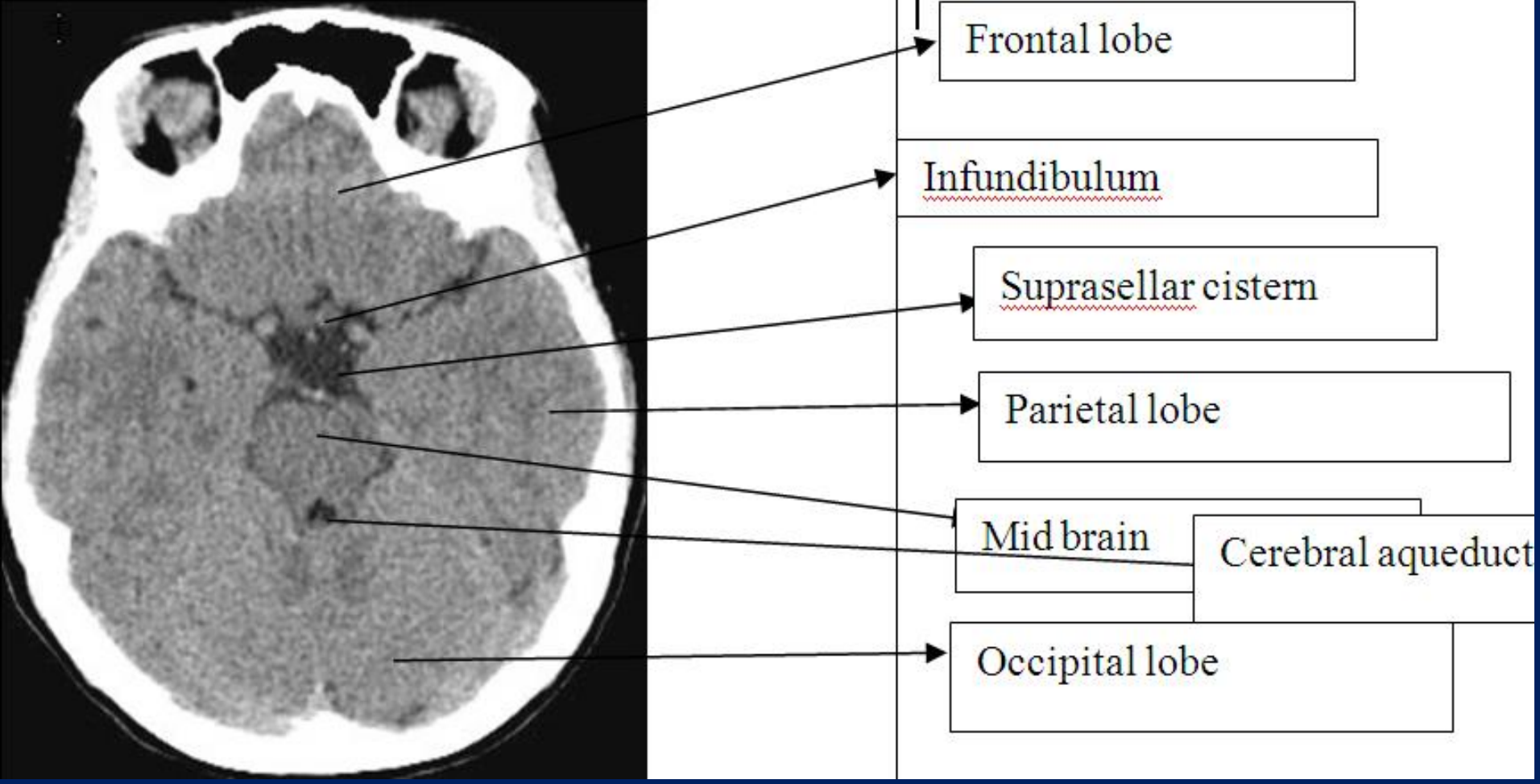
Suprasaller cistern

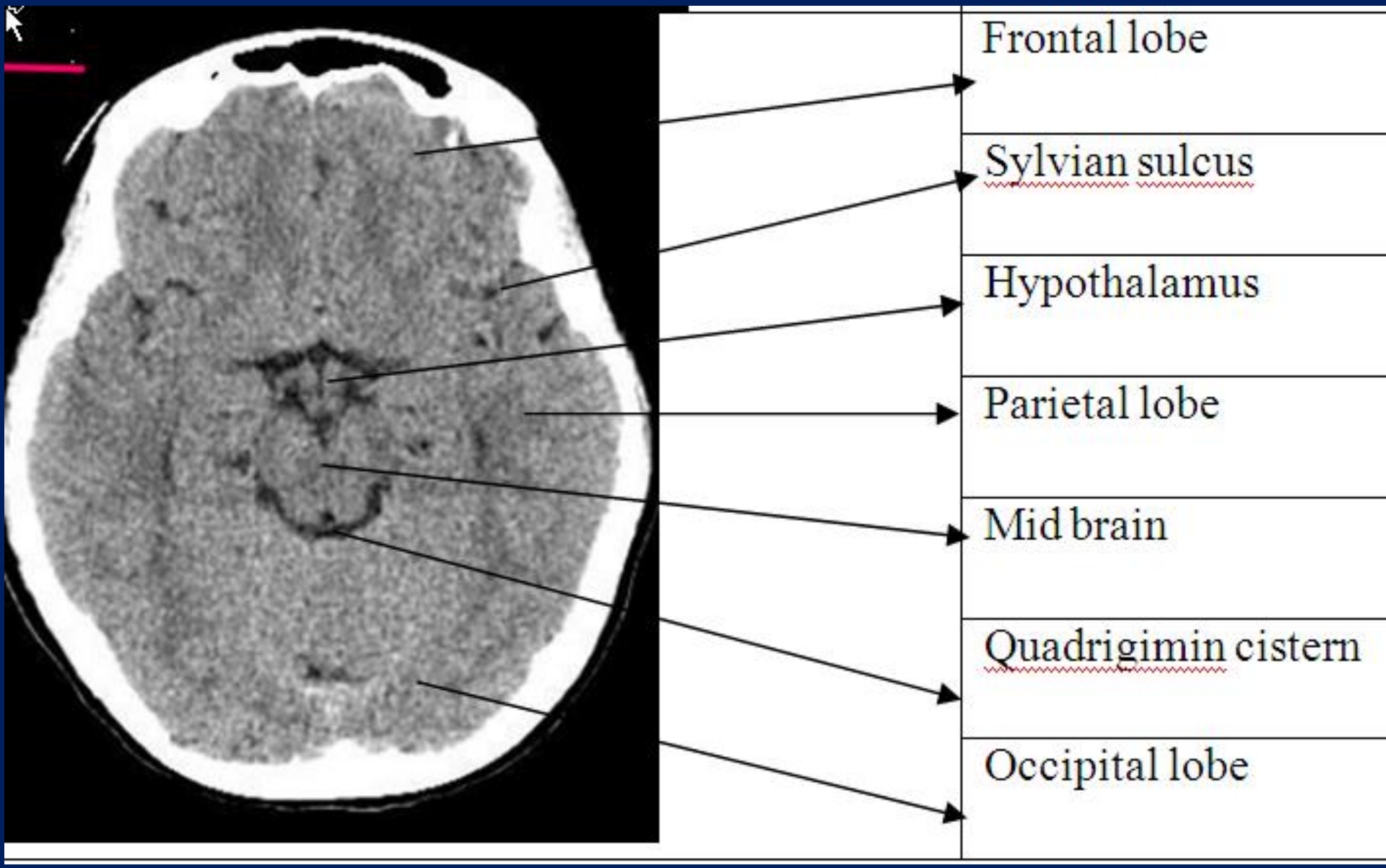
Mid brain

Infundibulam

Suprasaller cistern

Mid brain

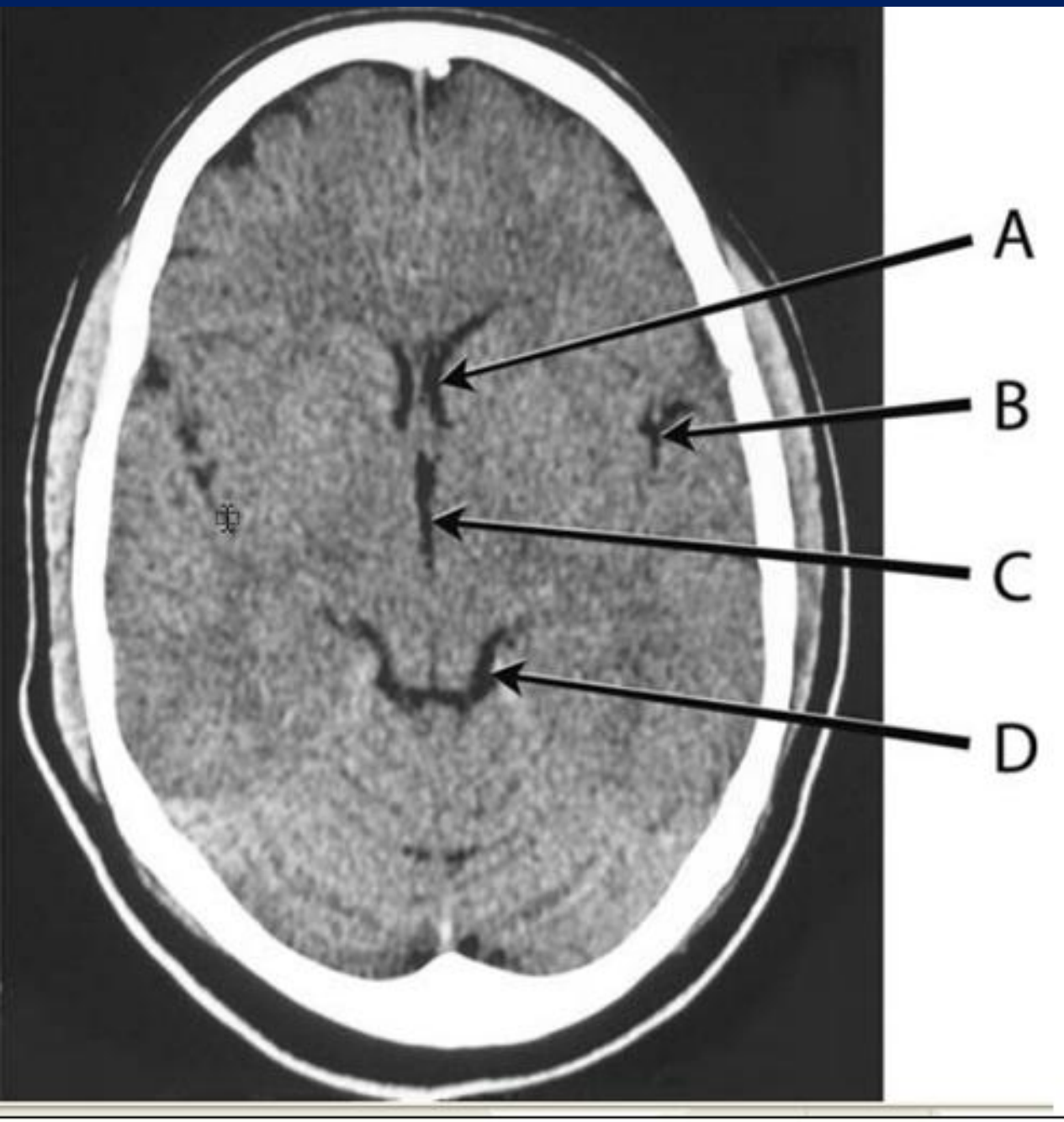

Frontal lobe
Infundibulum
Suprasellar cistern
Parietal lobe
Mid brain
Cerebral aqueduct
Occipital lobe


Frontal lobe
Sylvian sulcus
Hypothalamus
Parietal lobe
Mid brain
Quadrigimin cistern
Occipital lobe

Third ventricle

Mid brain

Quadrigemini cistern



A = Left frontal horn
B = Left sylvian fissur
C = Third ventricle
D = Ambient cistern / quadrigimini cistern

Frontal lobe

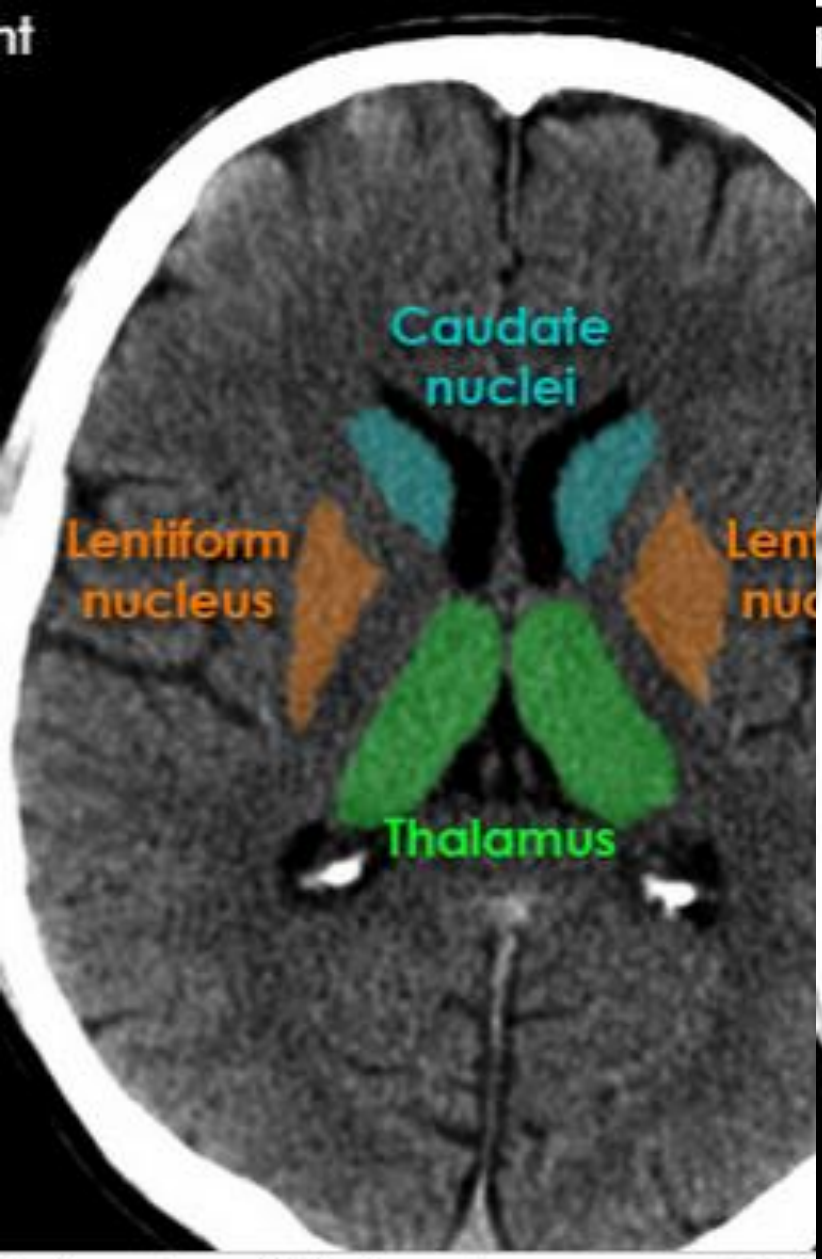
Sylvian fissure

Parietal lobe

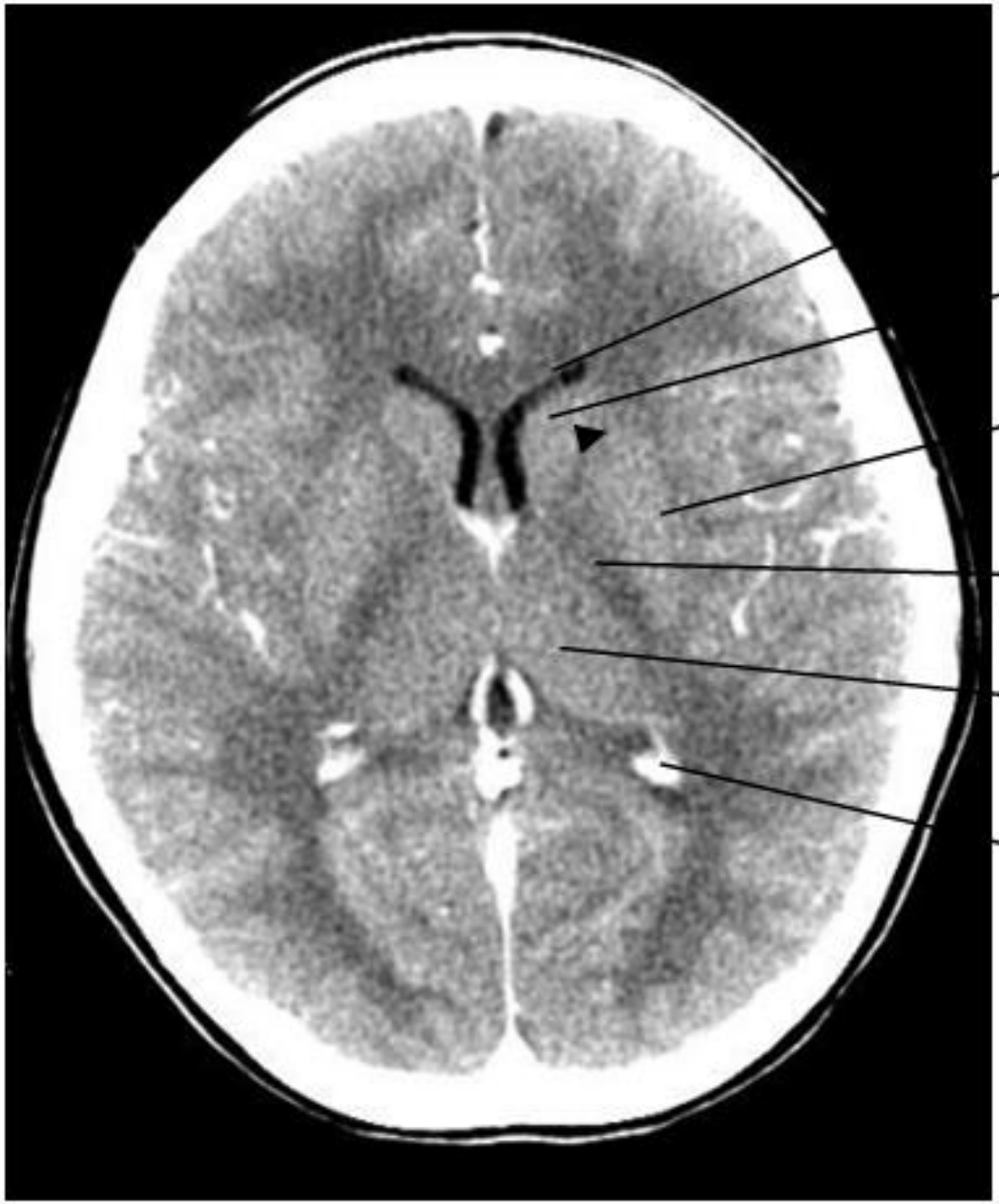
Mid brain

Quadrigimini cistern

Occipital lobe



brain_anatomy/ct_brain_anatomy_grey_matter#t



Frontal horn

Caudate nucleus

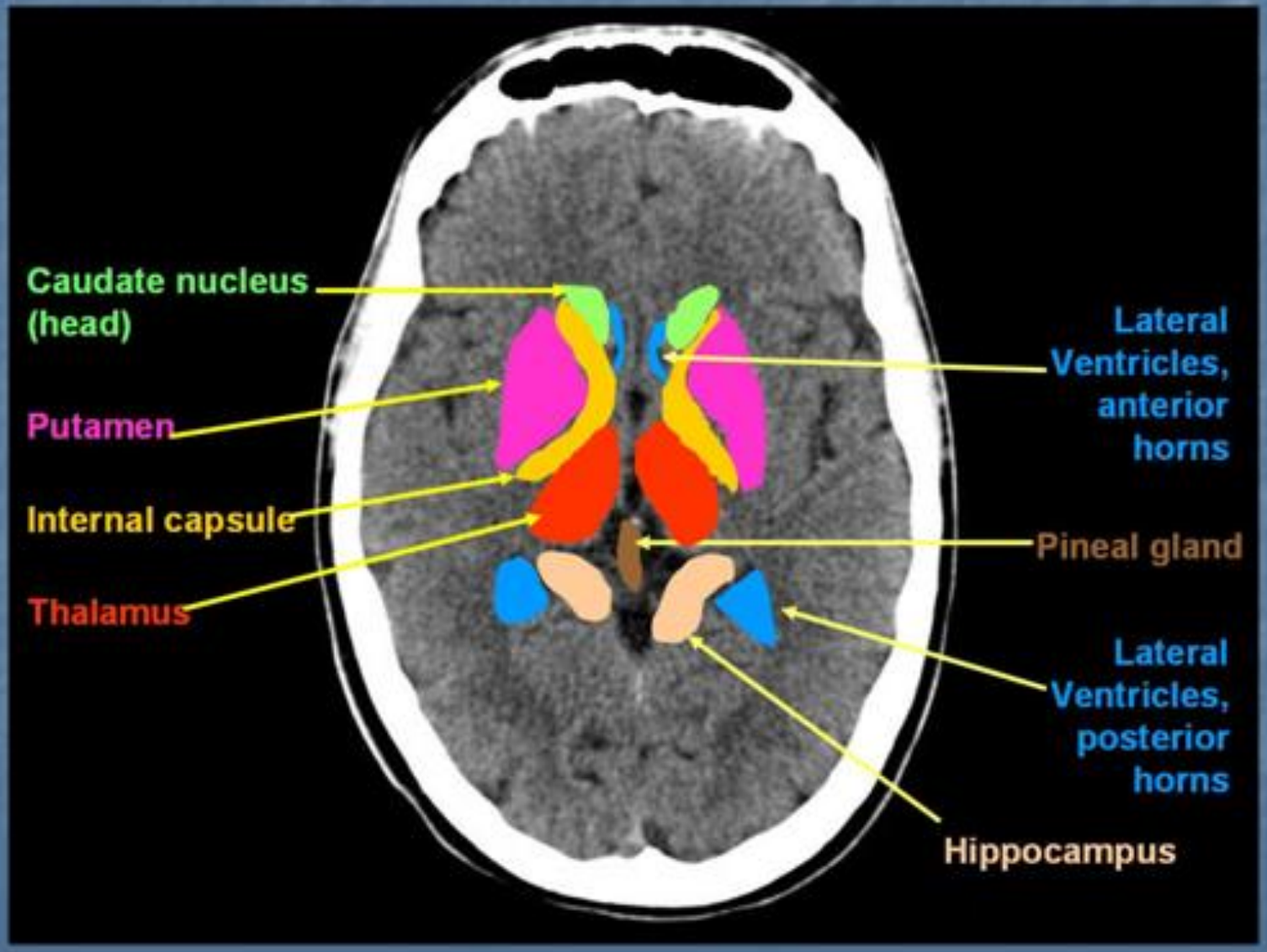
Basal ganglia

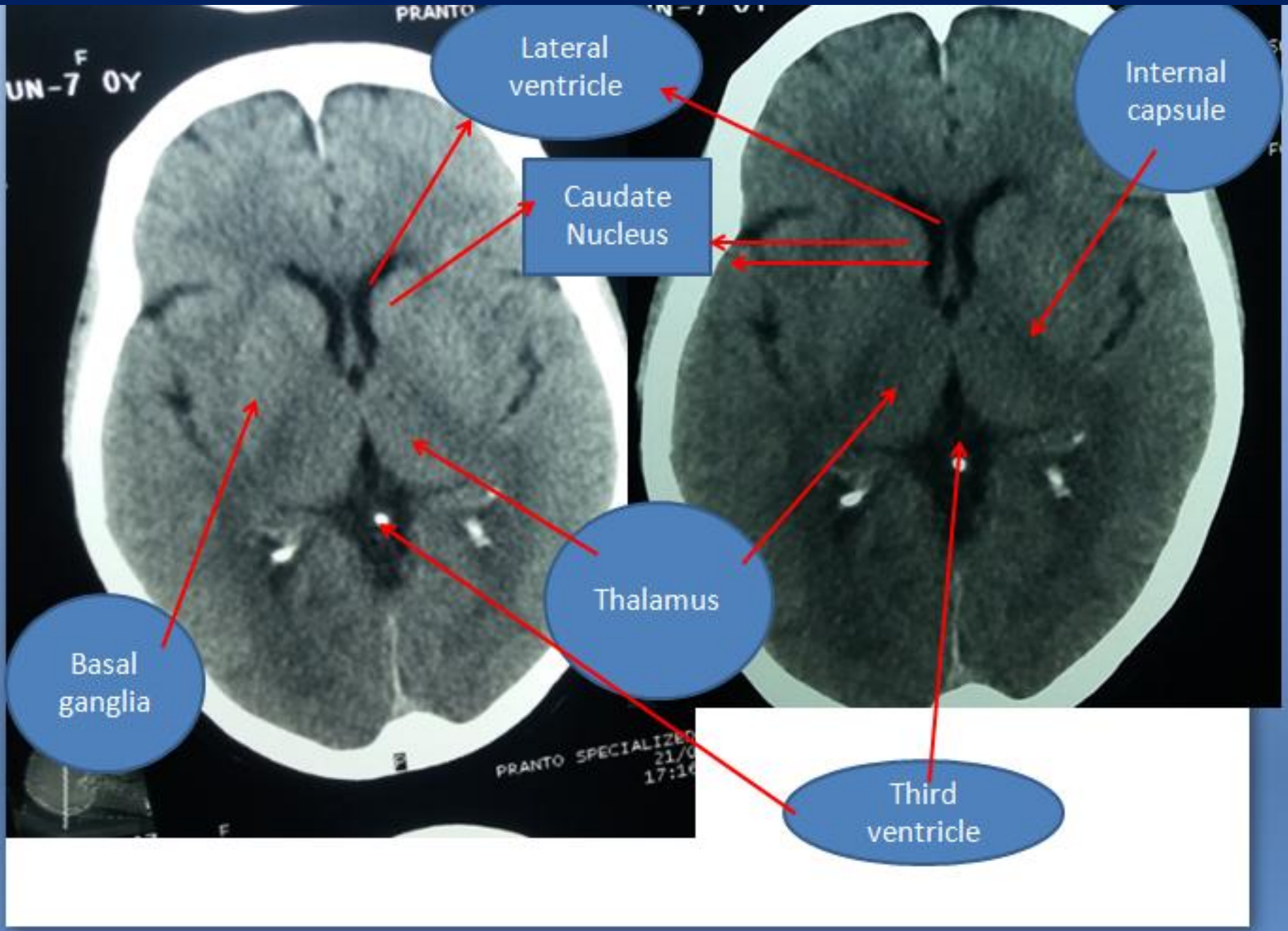
Internal capsule

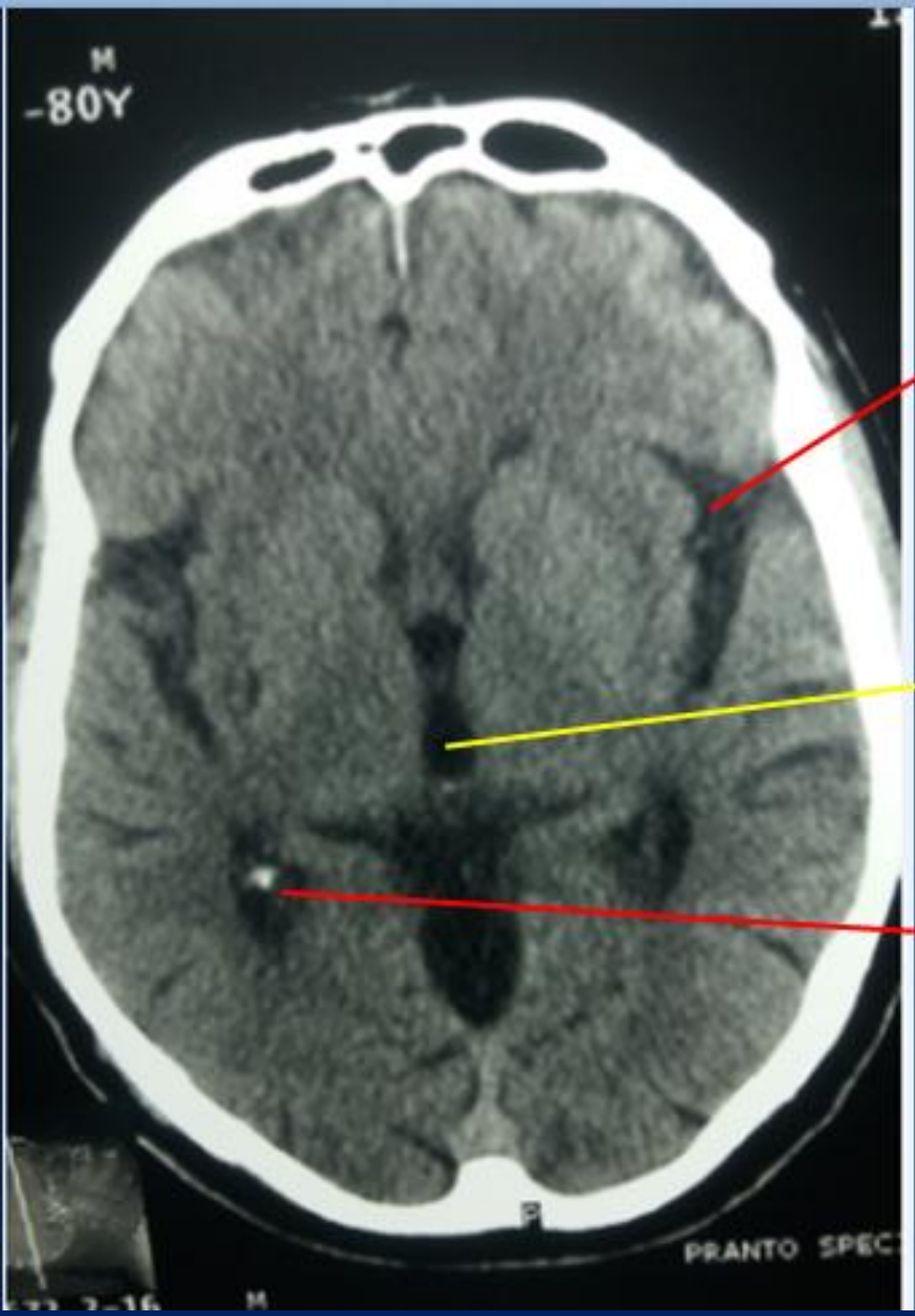
Thalamus

Occipital horn

CT for Dummies?



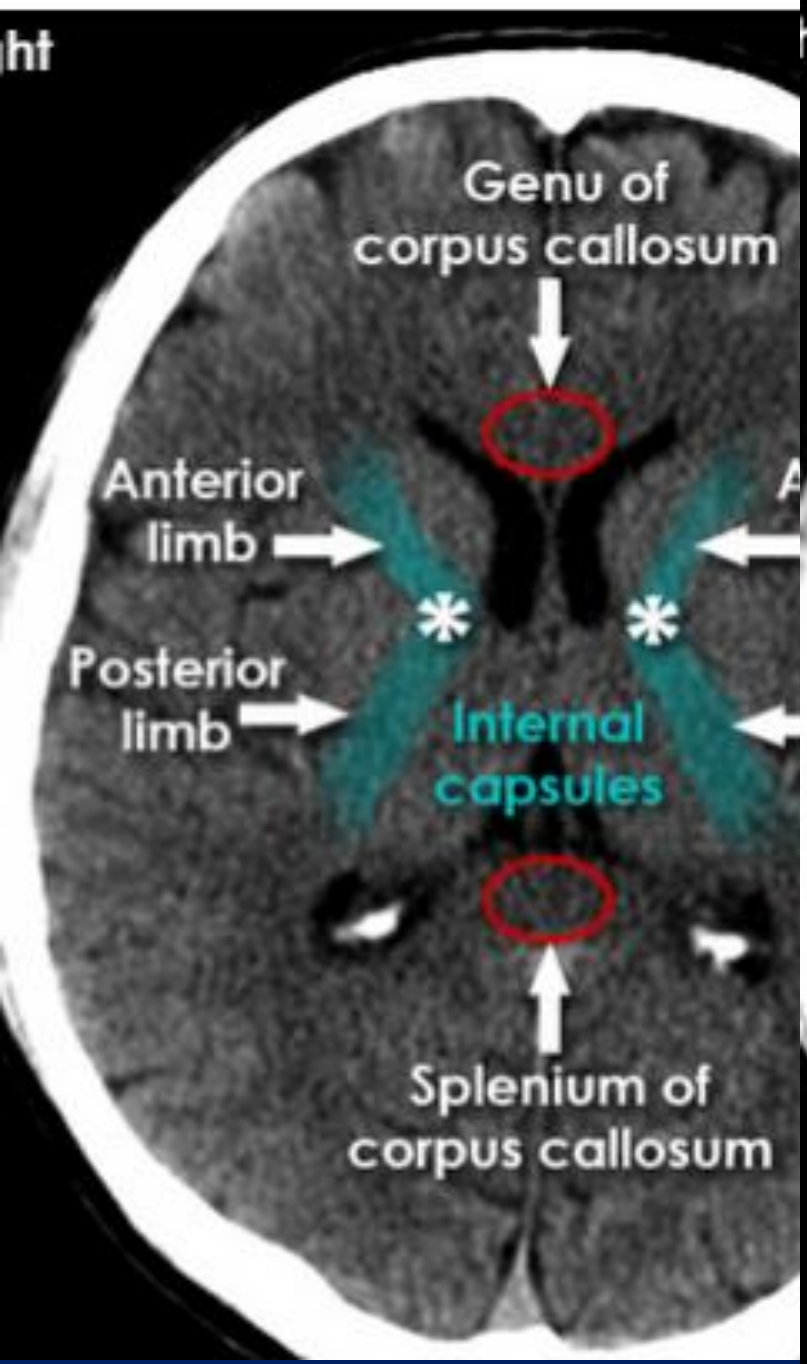

Lateral ventricle
Internal capsule
Caudate Nucleus
Thalamus
Basal ganglia
Third ventricle

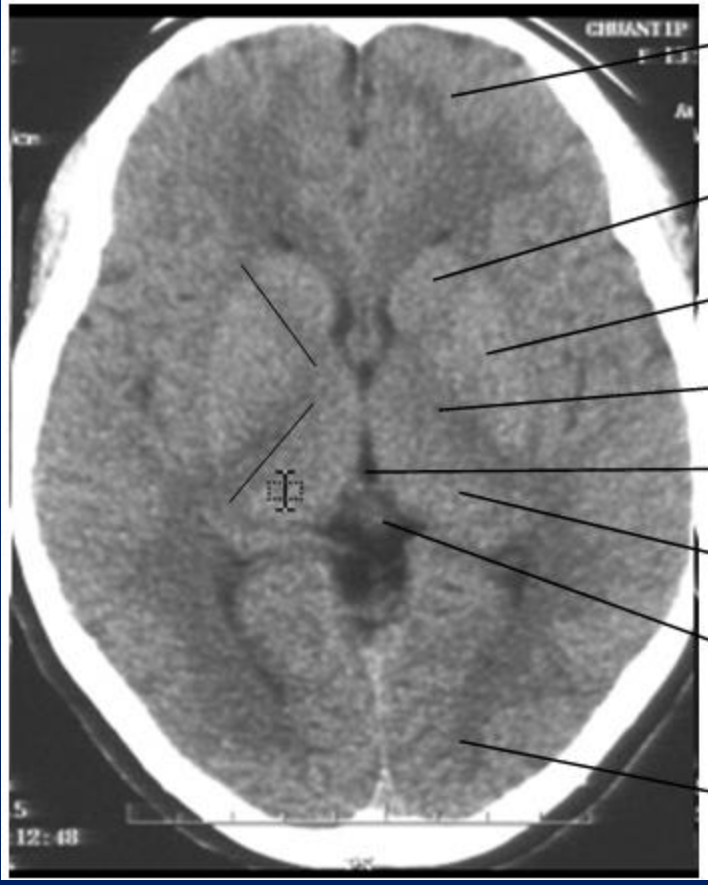


Sylvian sulcus

Third ventricle

Occipital horn of 4th ventricle


Genu of
corpus callosum
Anterior
limb
Posterior
limb
Internal
capsules
Splenium of
corpus callosum



- Frontal lobe
- Caudate nucleus
- Basal ganglia
- Internal capsule "V" shape , ant. Horn –above straight line and post .horn bellow straight line
- Third ventricle
- Thalamus
- Pineal body
- Occipital lobe

Frontal horn

Caudate nucleus

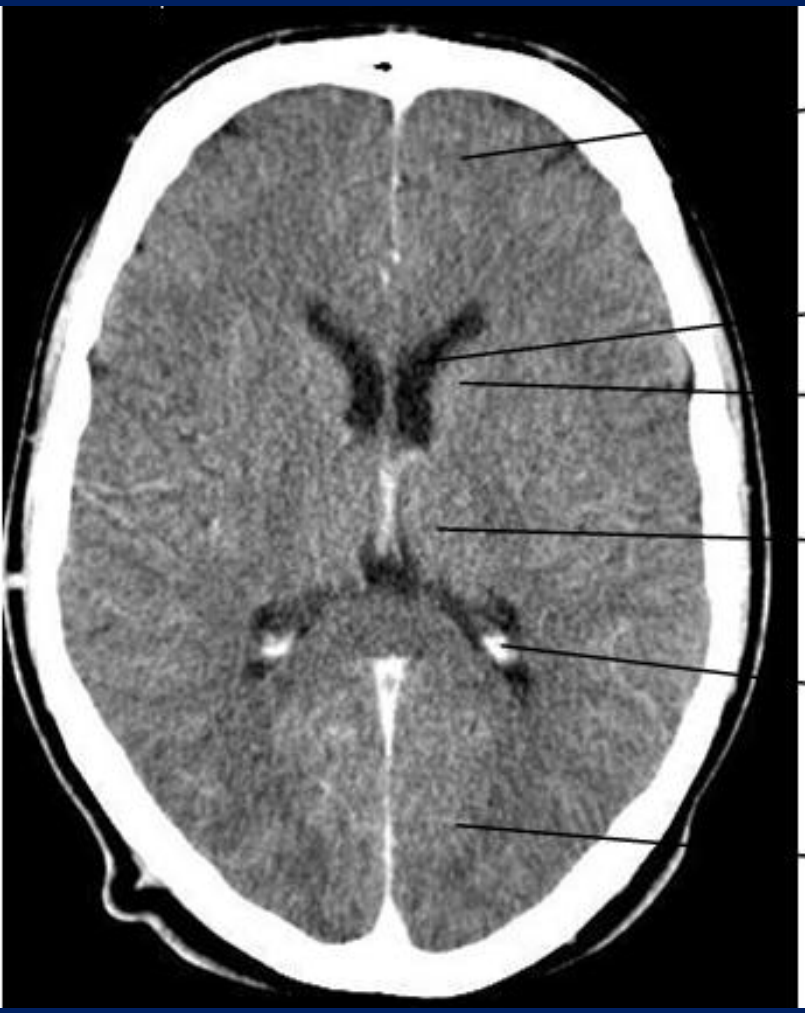
Basal ganglia

Internal capsule post. Horn

3rd ventricle

Thalamus

Occipital horn



Frontal lobe

Frontal horn ofLV

Caudate nucleus

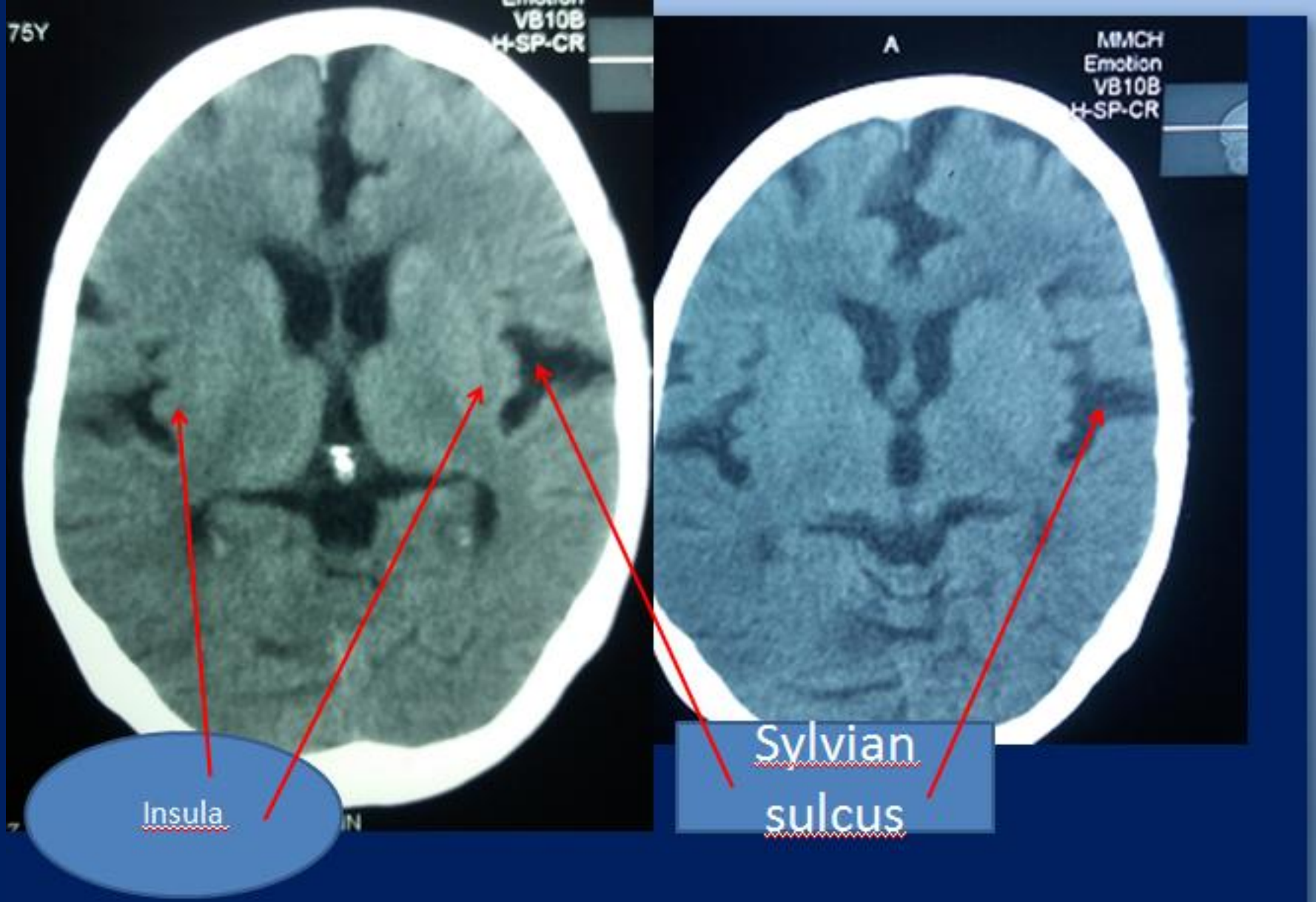
Thalamus

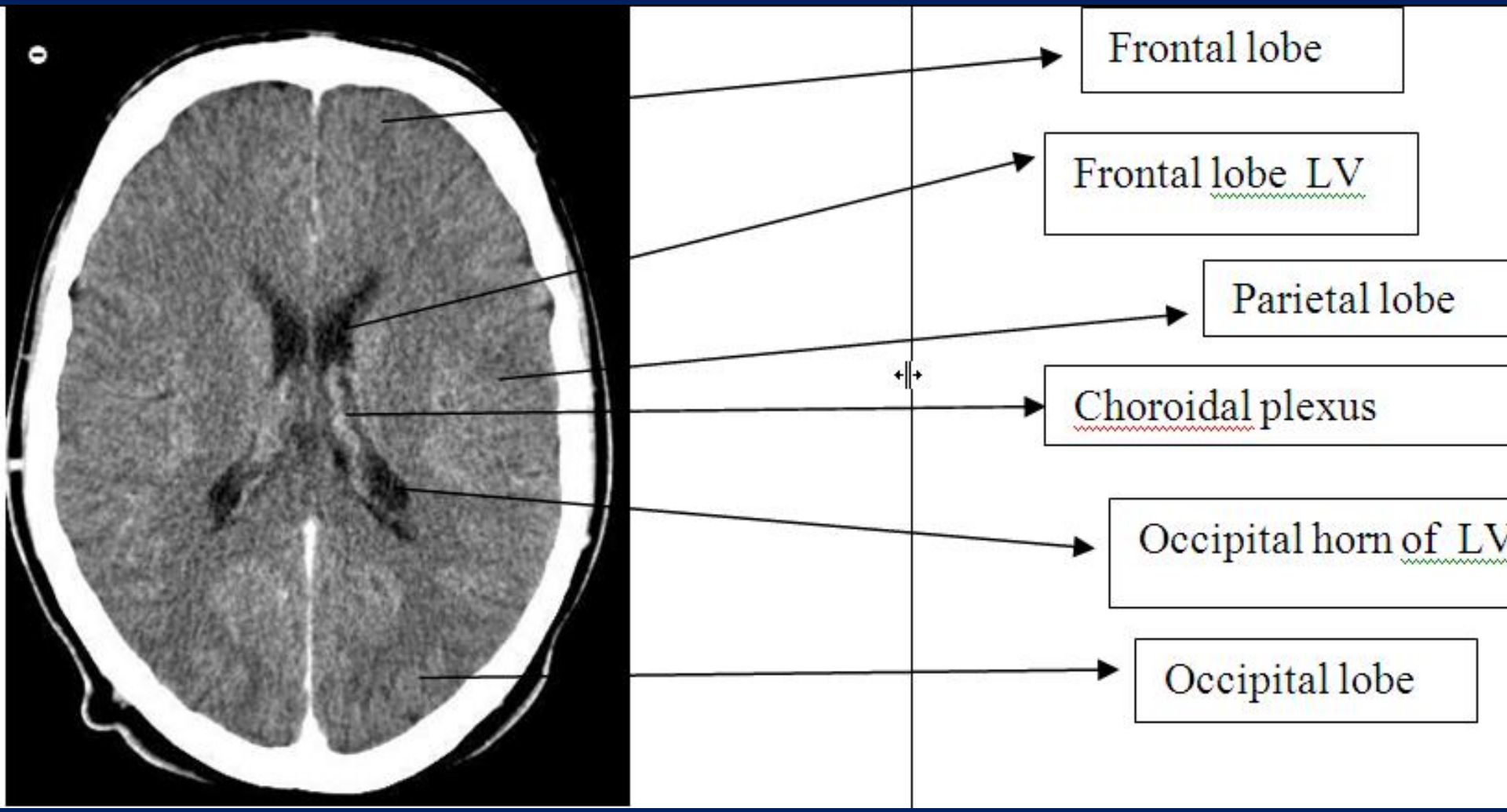
Calcification of choroidal plexus with in occipital horn LV

Occipital lobe


Cortical
grey matter
Insula
Cortical
grey
matter


Frontal lobe
Insula
Sylvian fissure
Temporal lobe
Central sulcus
Parietal lobe


75Y
VB10B
H-SP-CR
A
MMCH
Emotion
VB10B
H-SP-CR
Insula
Sylvian sulcus

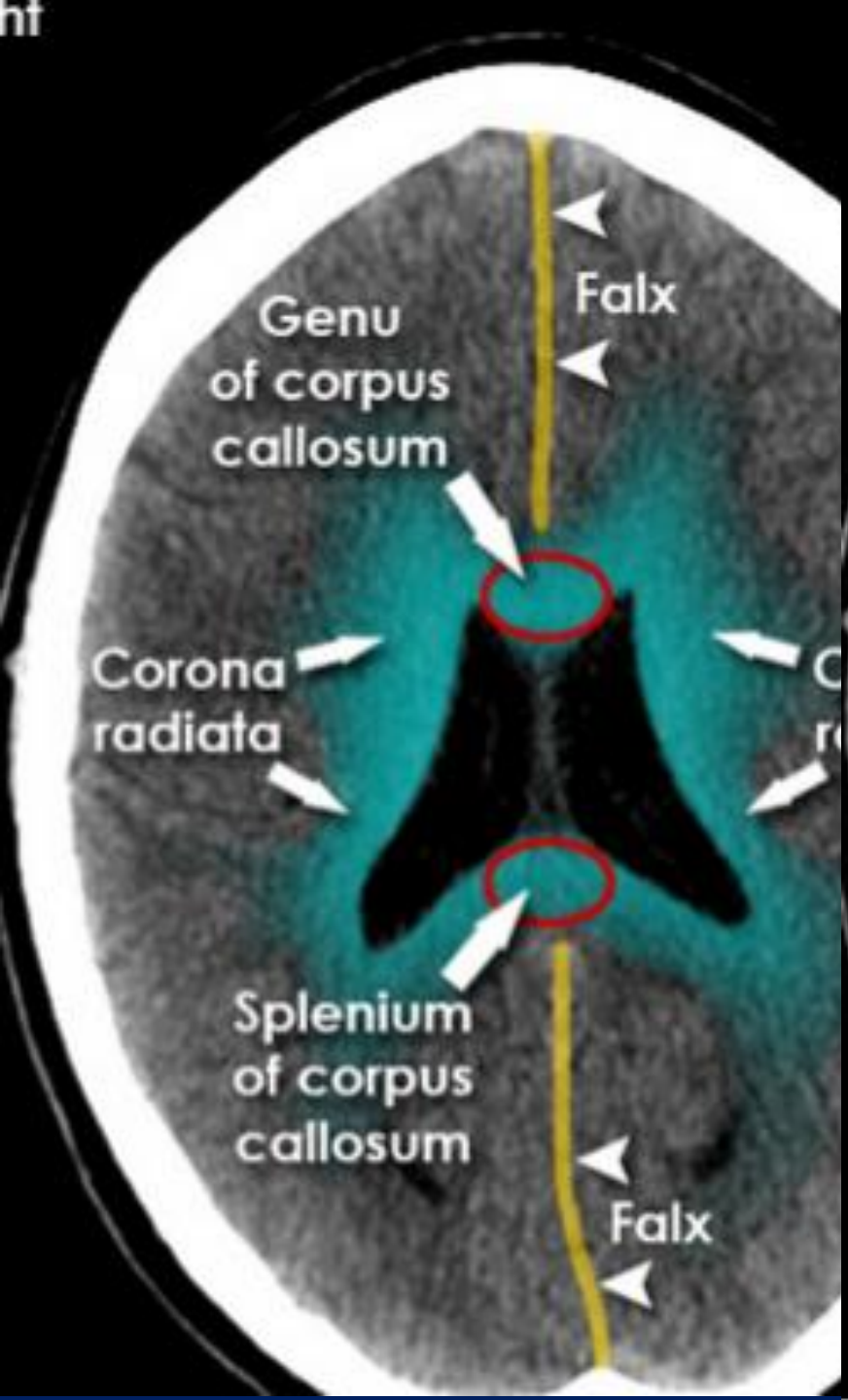

Frontal lobe
Frontal lobe LV
Parietal lobe
Choroidal plexus
Occipital horn of LV
Occipital lobe

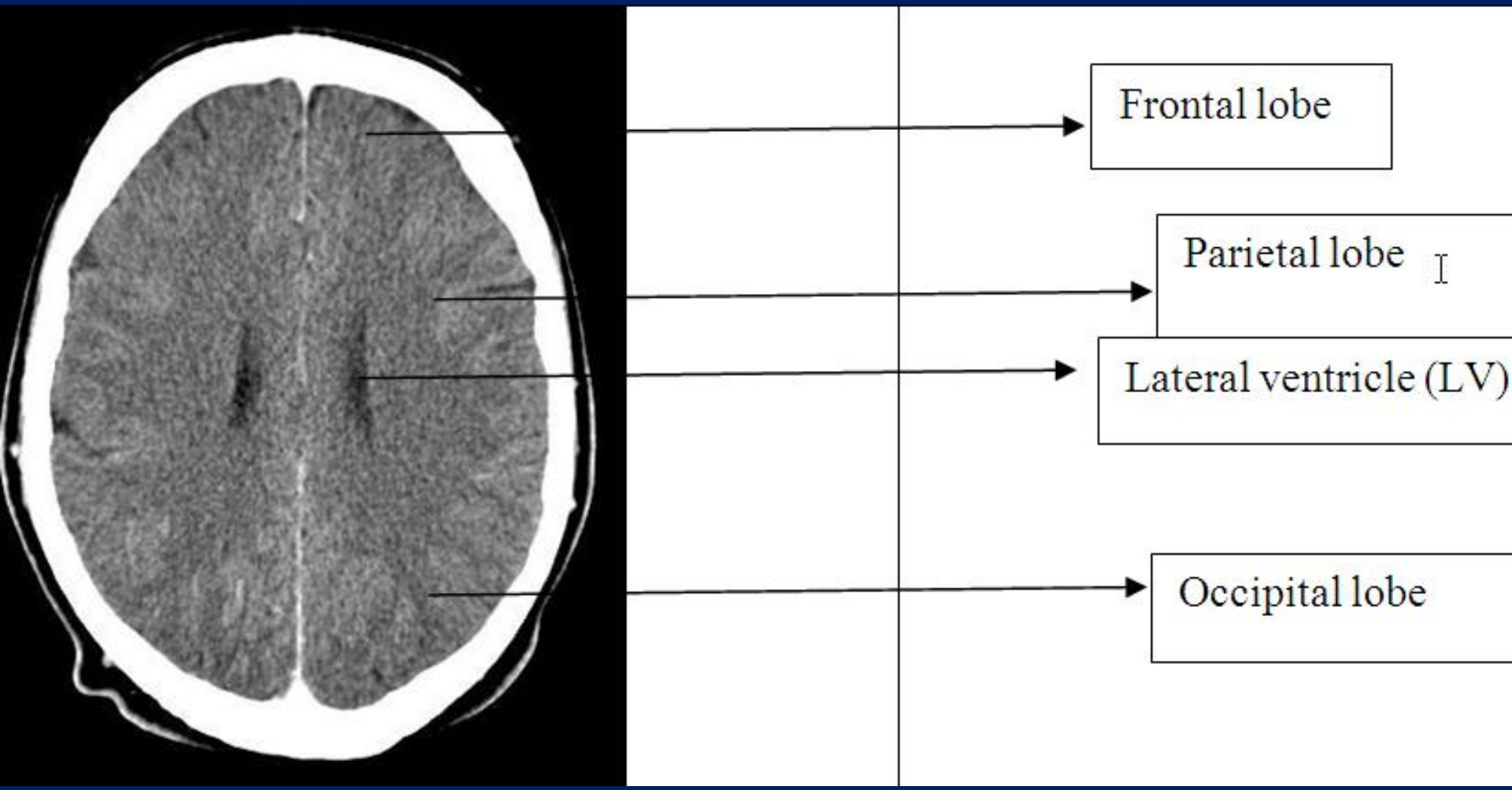
Frontal lobe

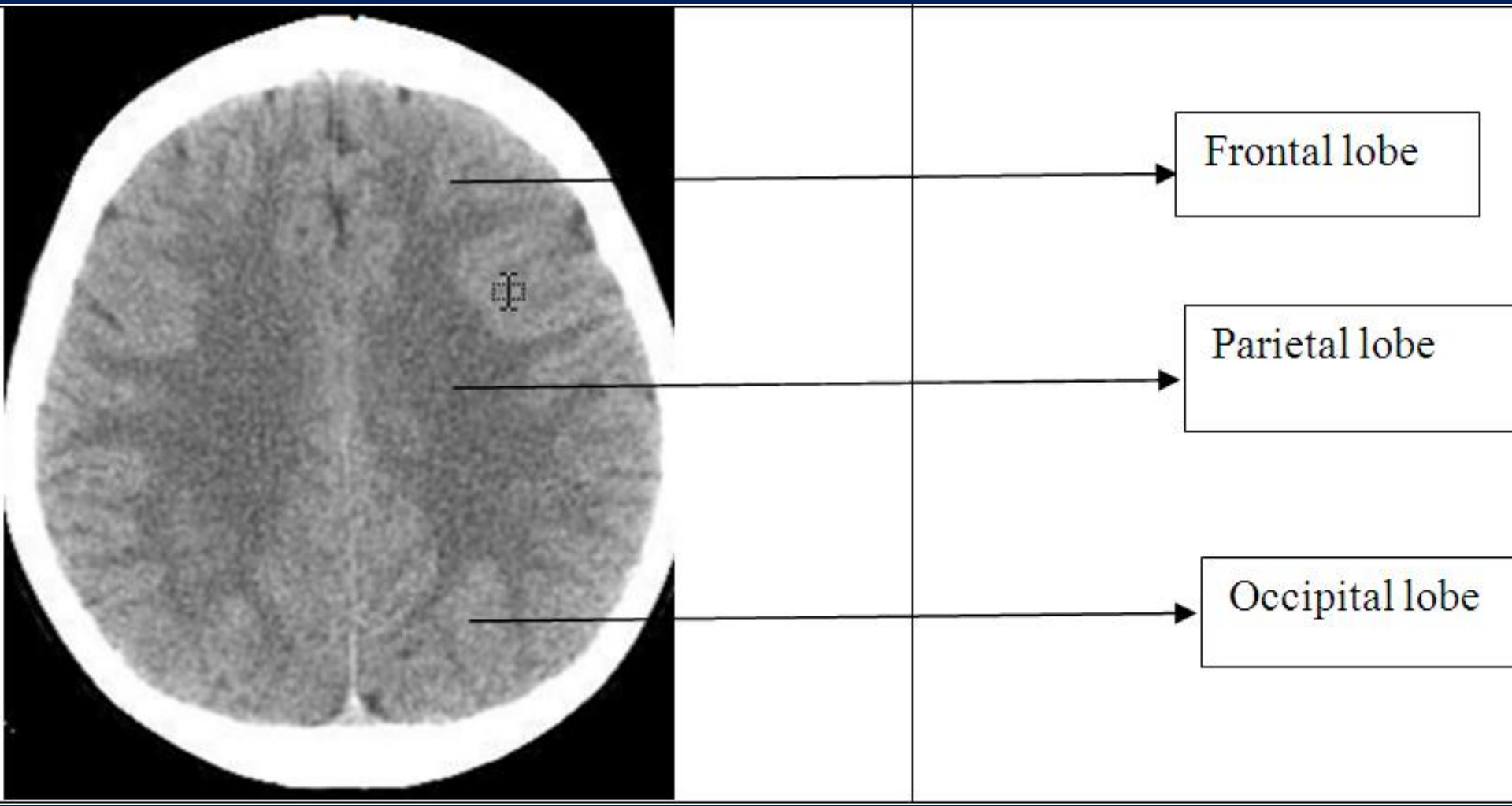
Parietal lobe

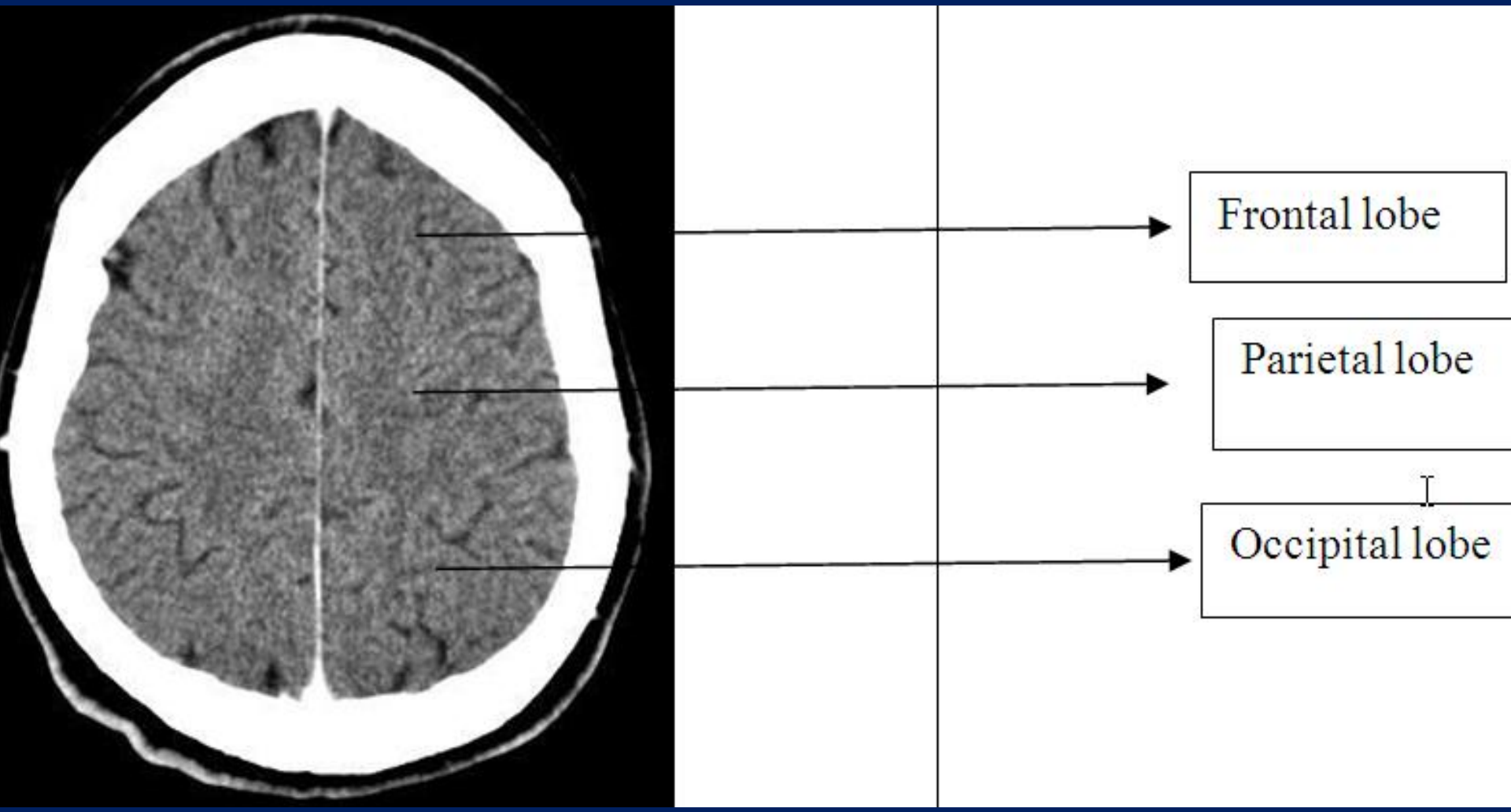
Lateral ventricle (LV)

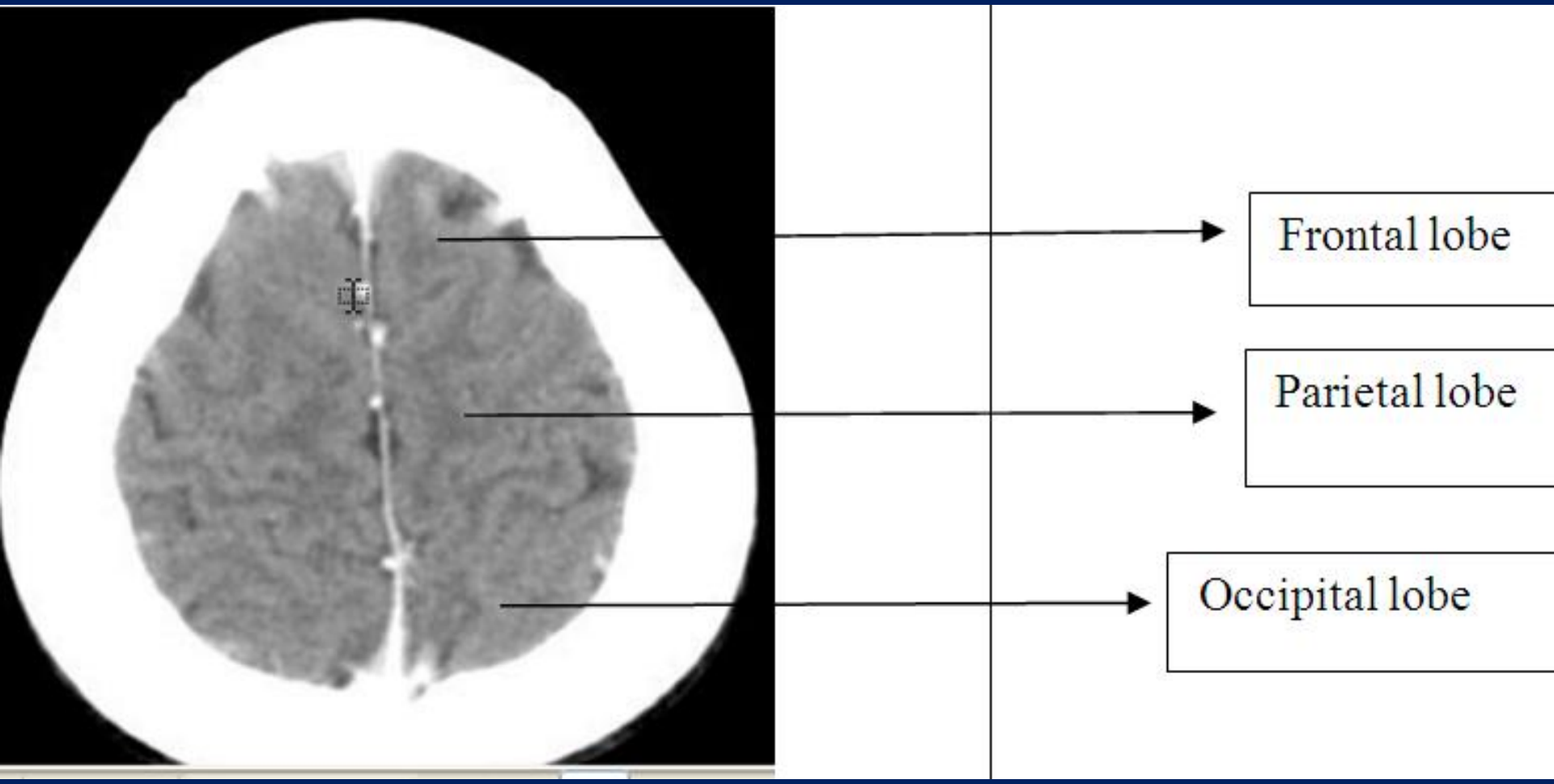
Occipital lobe

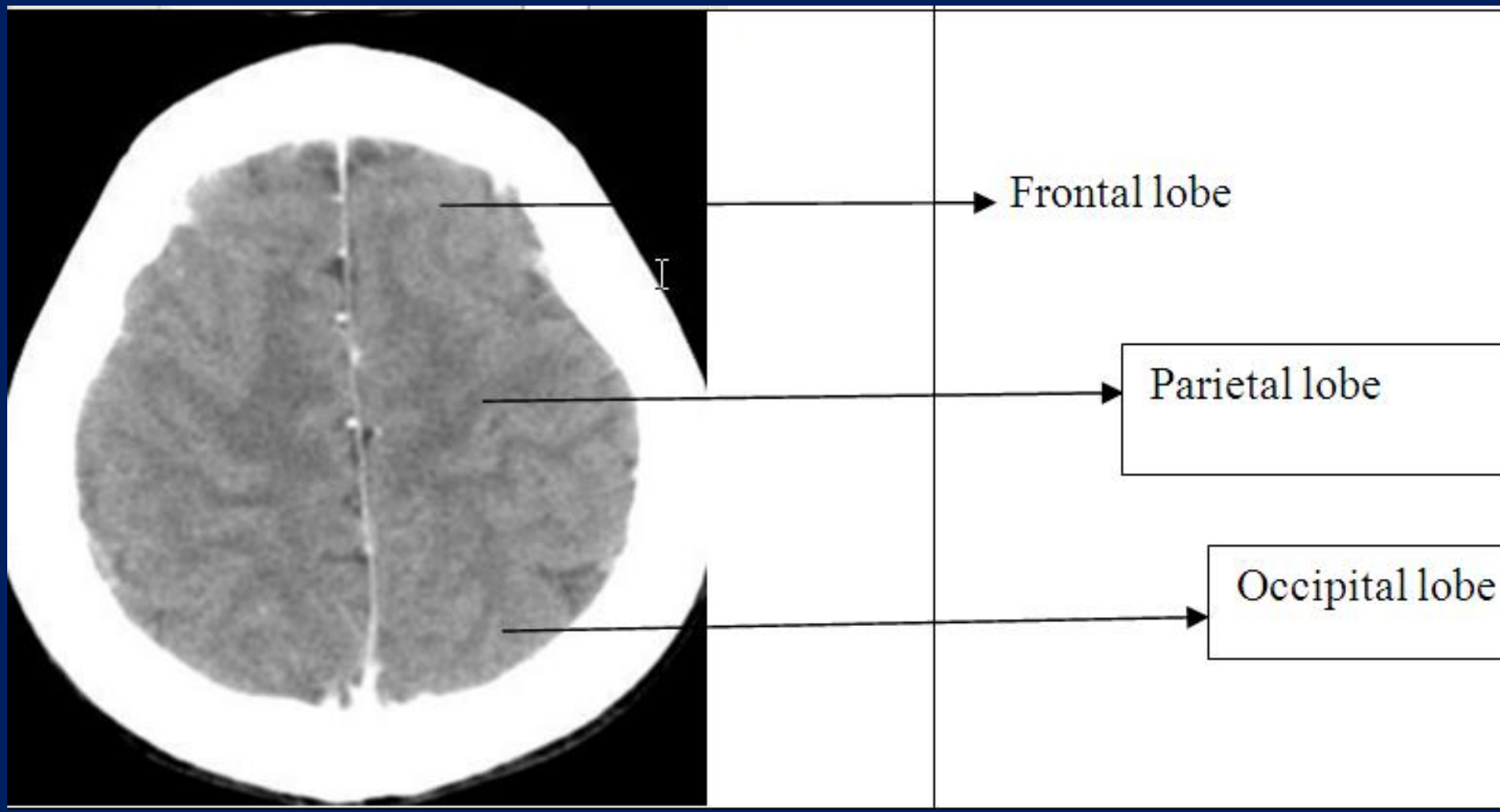

Falx
Genu
of corpus
callosum
Corona
radiata
Splenium
of corpus
callosum
Falx


Frontal lobe
Parietal lobe
Lateral ventricle (LV)
Occipital lobe


Frontal lobe
Parietal lobe
Occipital lobe


Frontal lobe
Parietal lobe
Occipital lobe


Frontal lobe
Parietal lobe
Occipital lobe


Frontal lobe
Parietal lobe
Occipital lobe

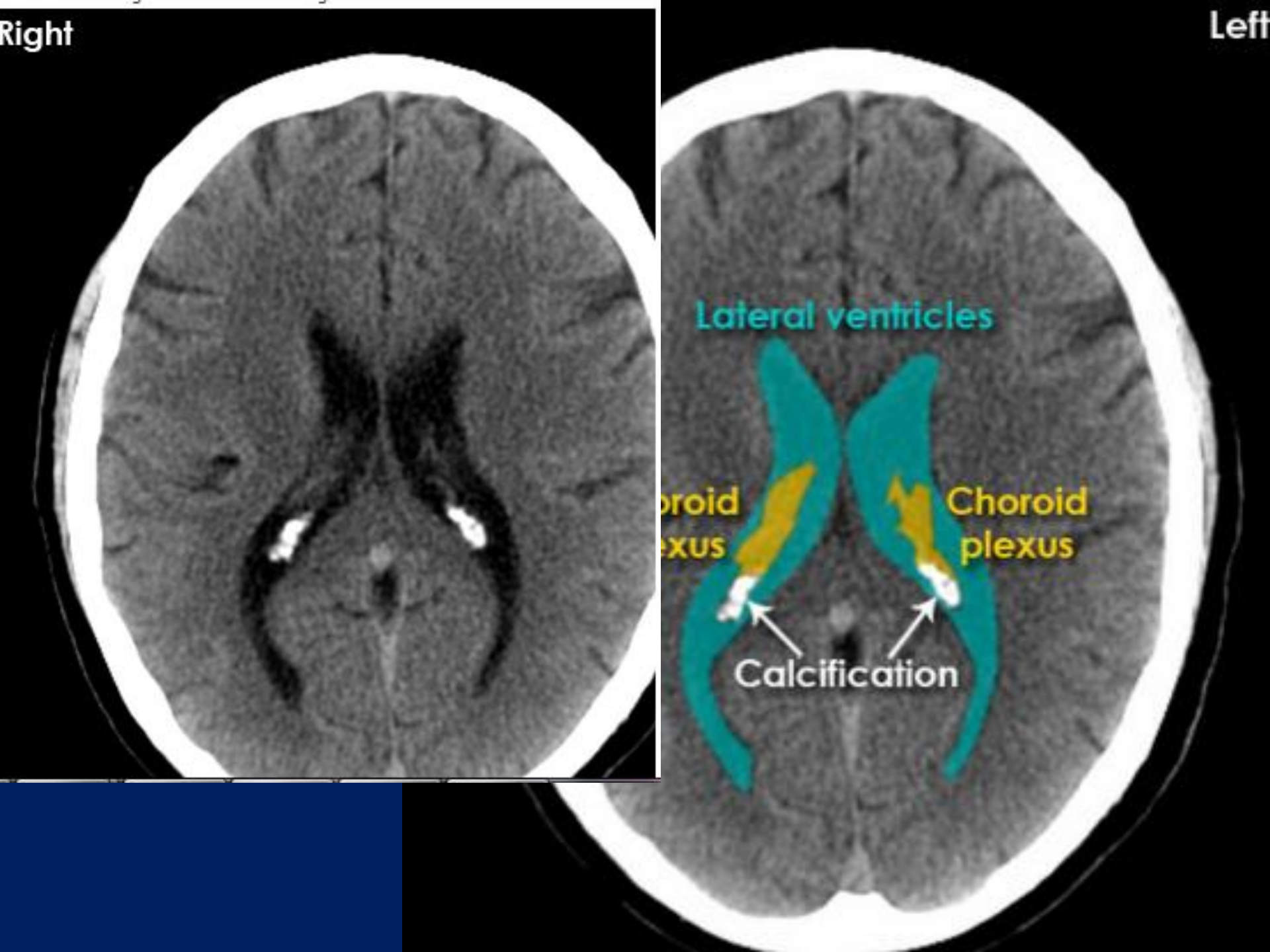
Ventricular system

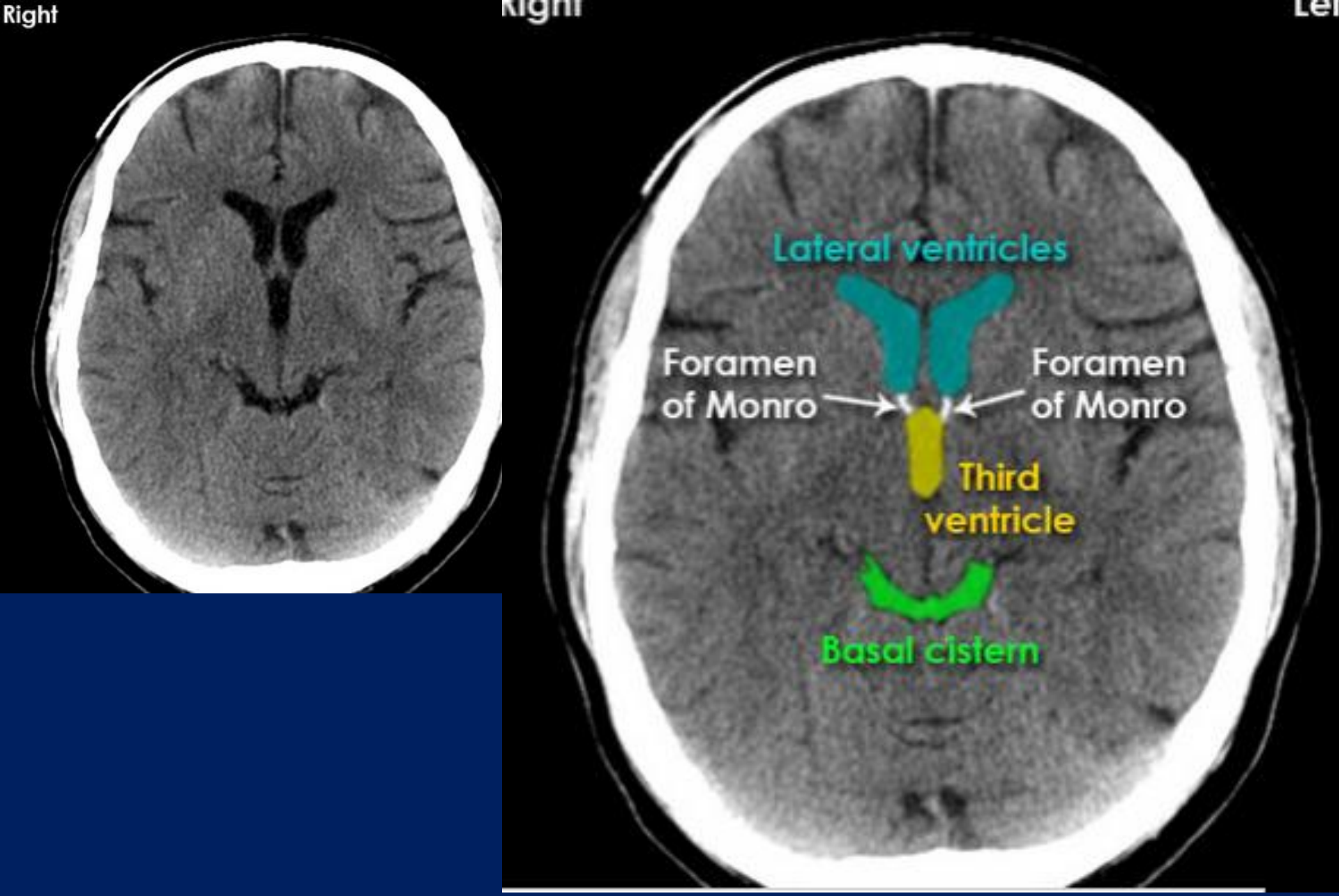
CSF Flow:

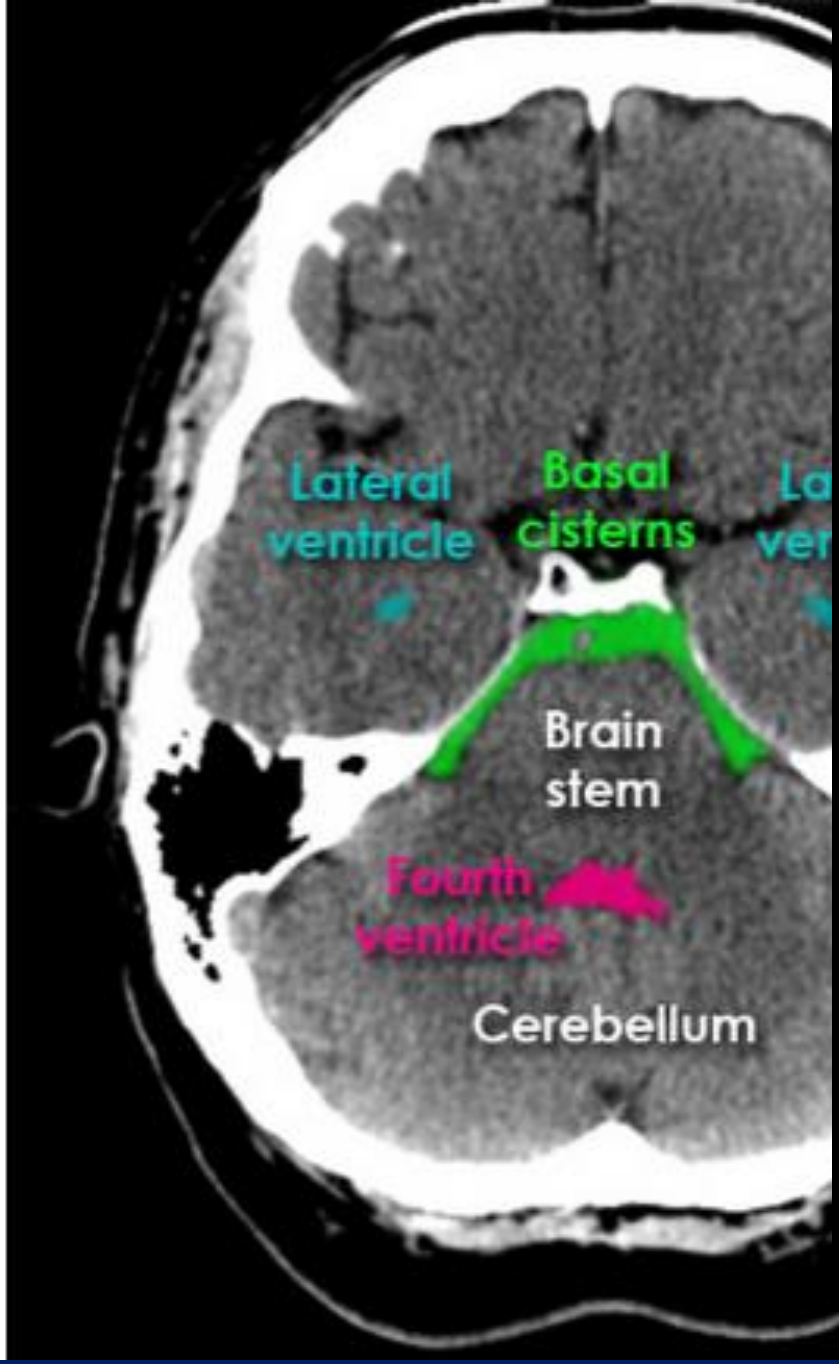
Lateral ventricles (Choroid plexus) → IIIrd Ventricle → Aqueduct of Sylvius → IVth Ventricle → Magendie and Lushka → Subarachnoid space.

- 0.5-1cc/minute in adults.
- Adult CSF Volume = 150cc

Adult CSF Production 500-700 cc/day (i.e. CSF "turns over" 3-5 times/day)


Right
Left
Lateral ventricles
oroid
exus
Choroid
plexus
Calcification


Right
Lateral ventricles
Foramen of Monro
Foramen of Monro
Third ventricle
Basal cistern

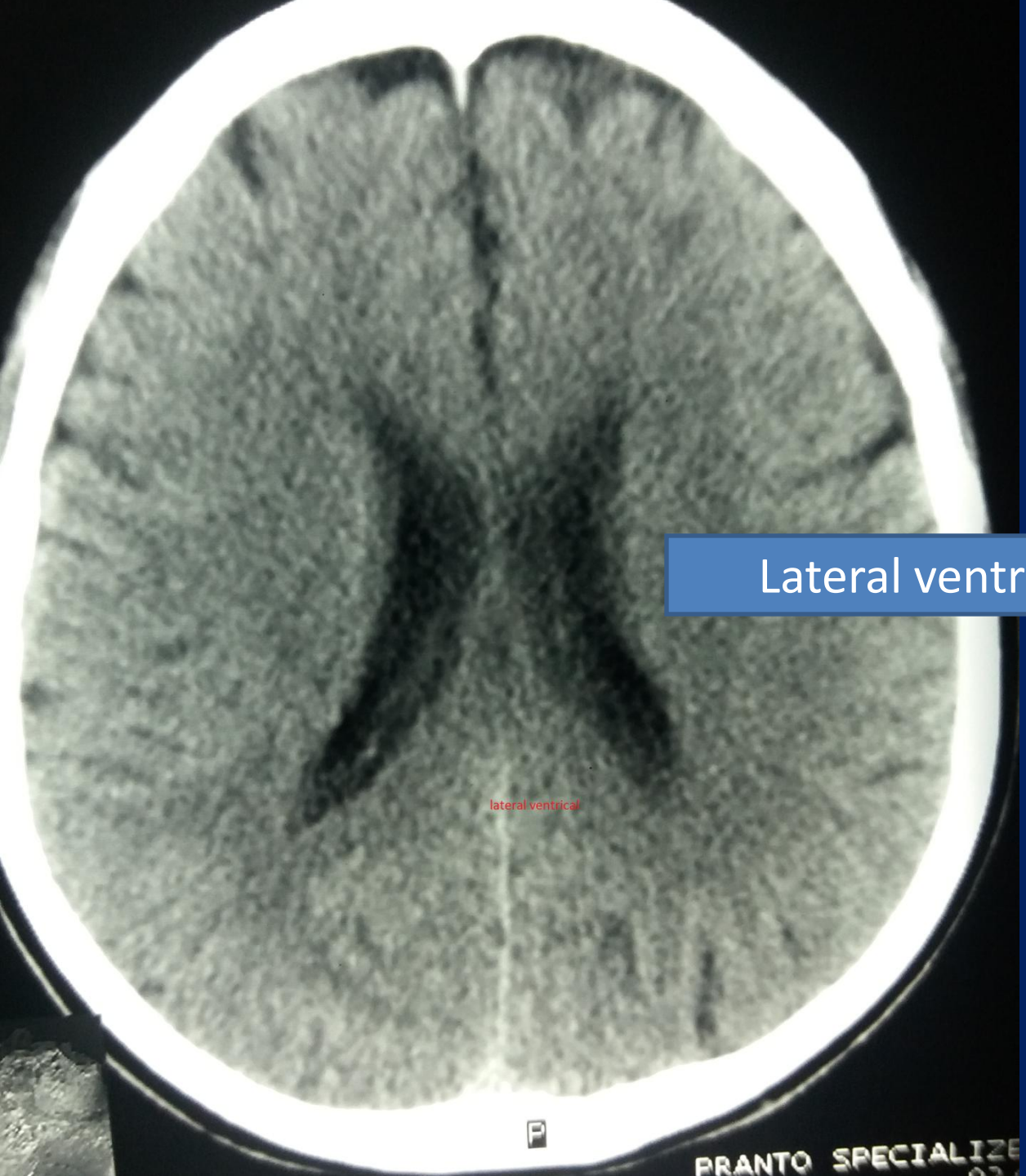

Lateral ventricle
Basal cisterns
Brain stem
Fourth ventricle
Cerebellum

Lateral ventricle (LV)

Frontal horn Lateral ven.

Sylvian fissure / lateral sulcus

Occipital horn of L.V.



Lateral ventricle

Frontal horn Lateral ven.

Sylvian fissure / lateral sulcus

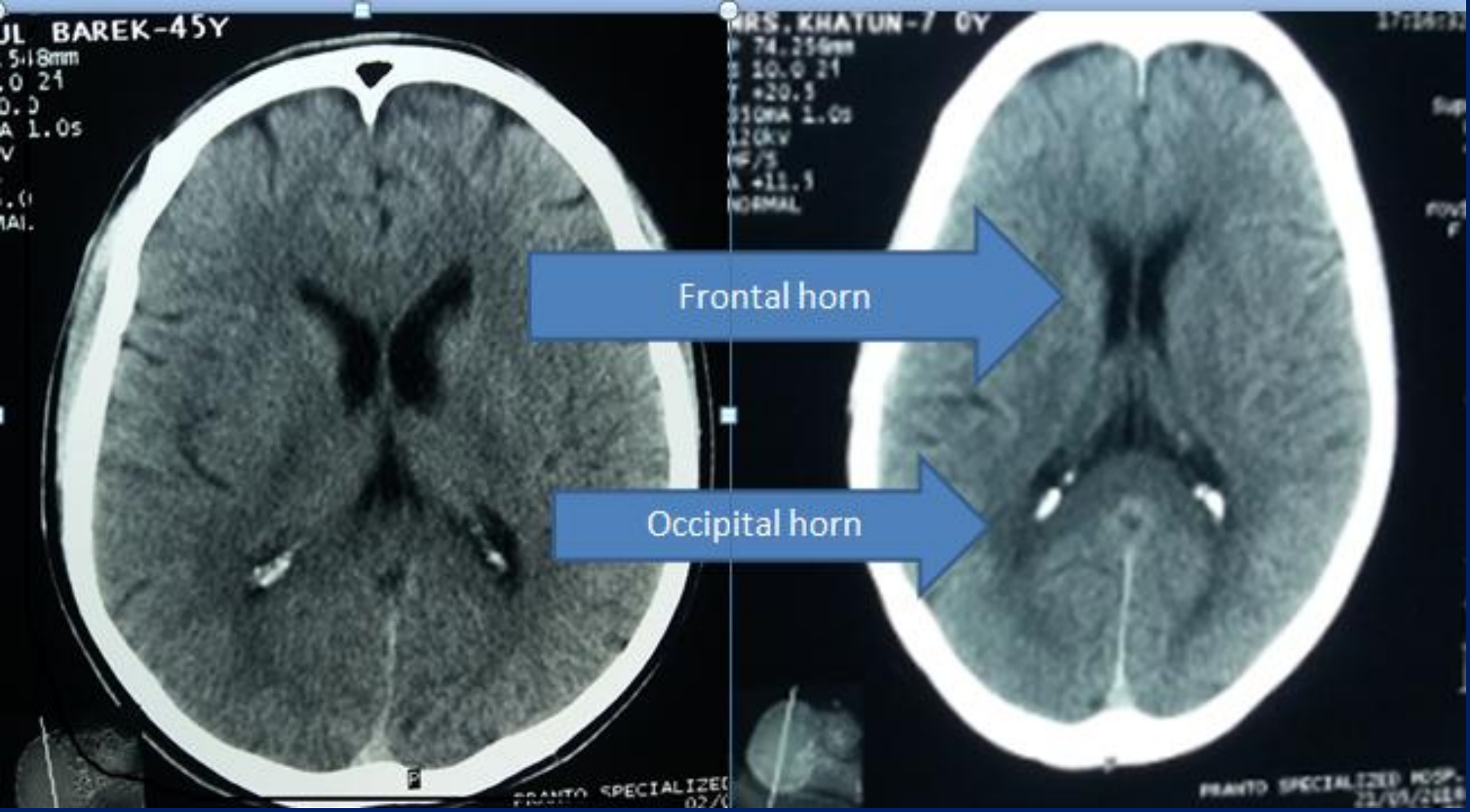
3rd ventricle

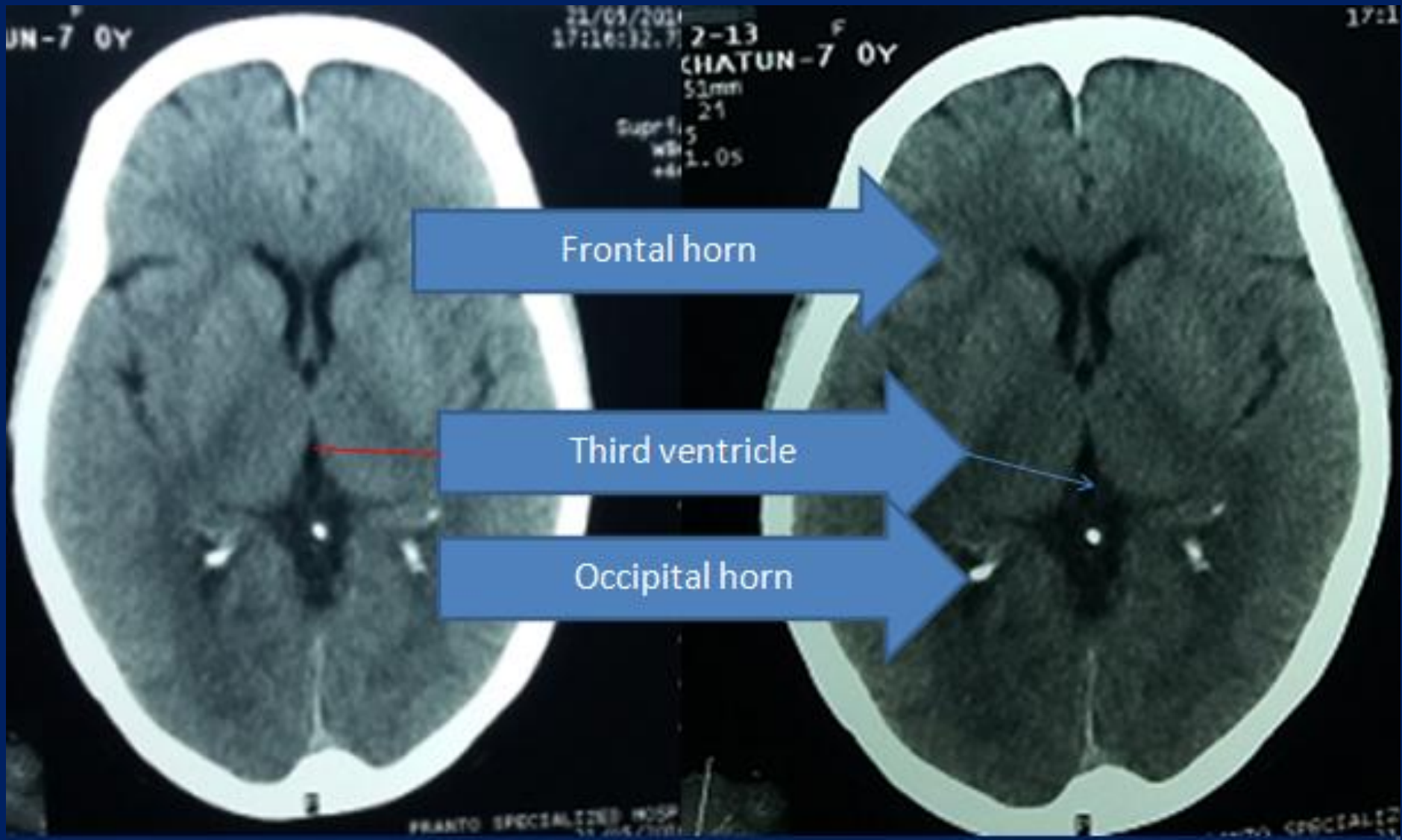
Occipital horn of L.V.

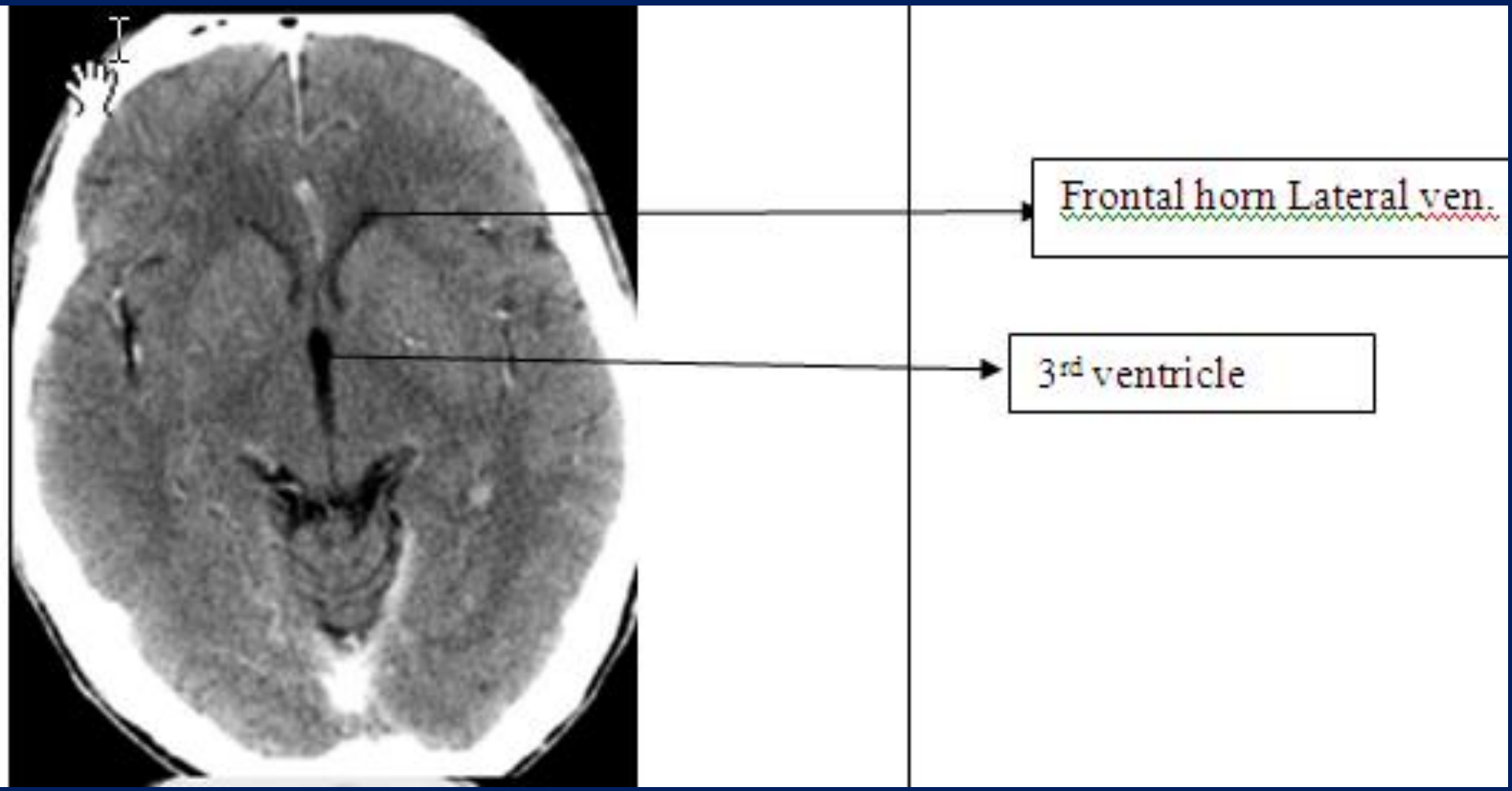
Frontal horn Lateral ven.

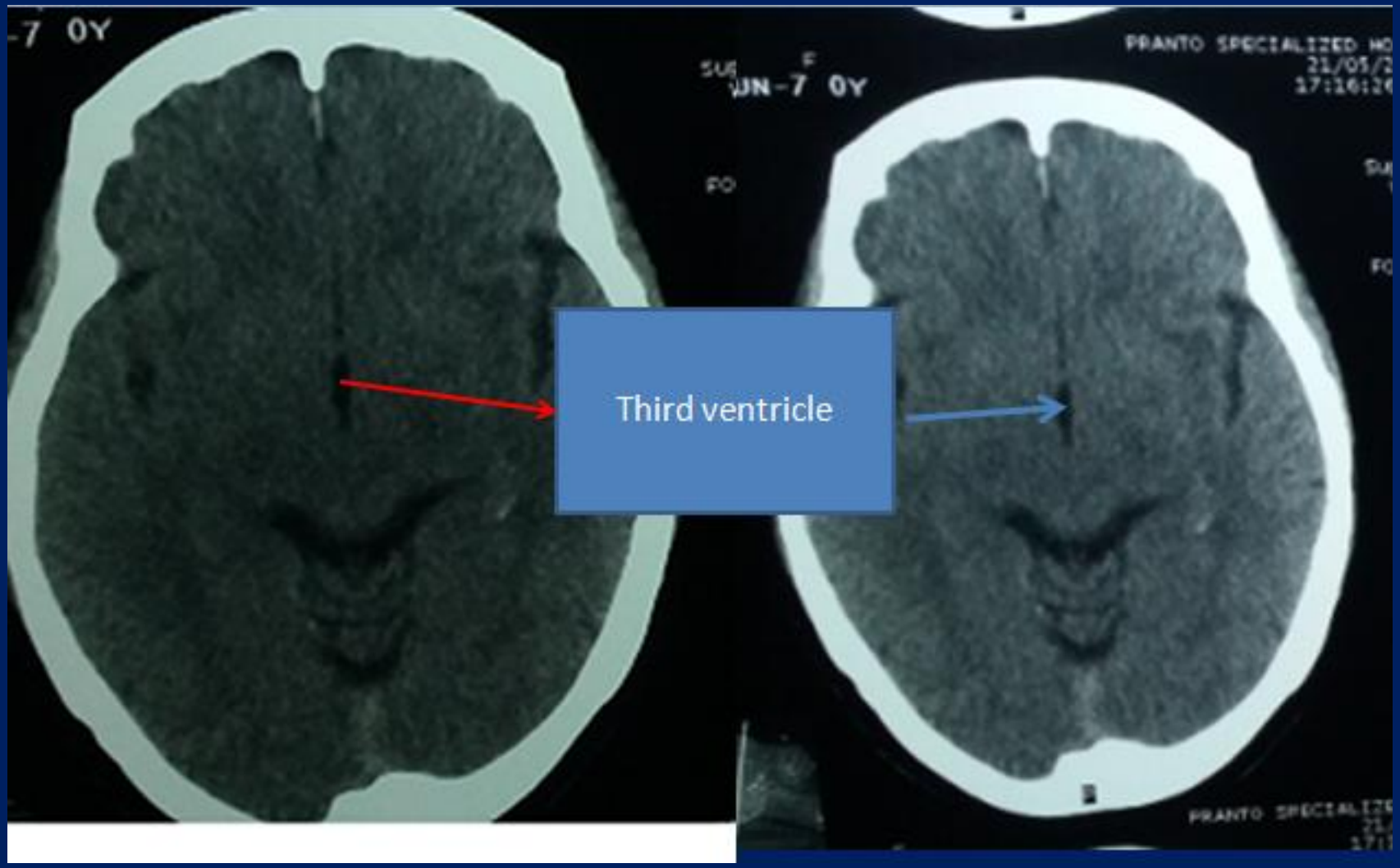
3rd ventricle

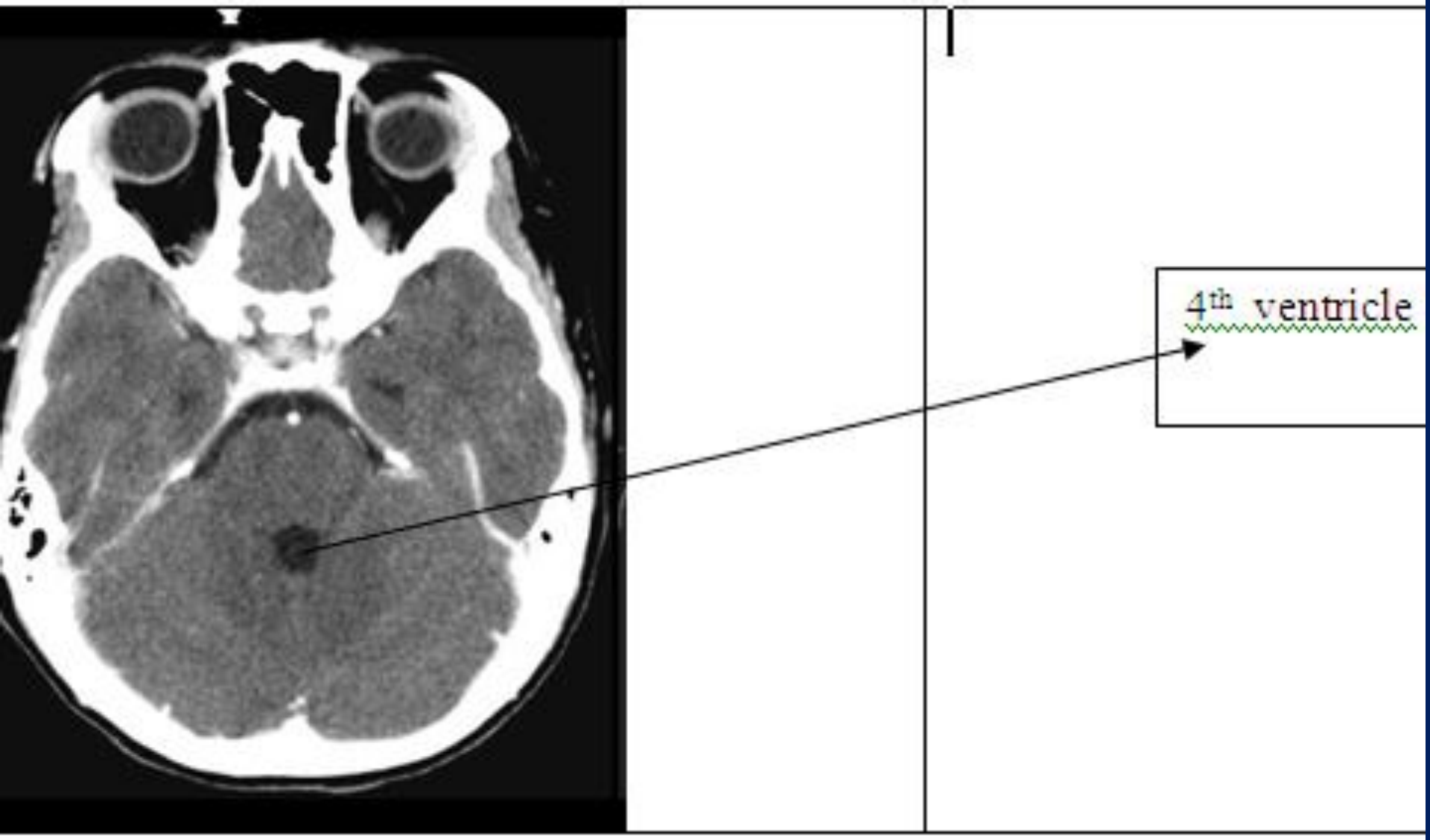
Occipital horn of L.V.


Frontal horn
Occipital horn


Frontal horn
Third ventricle
Occipital horn


Frontal horn Lateral ven.
3rd ventricle

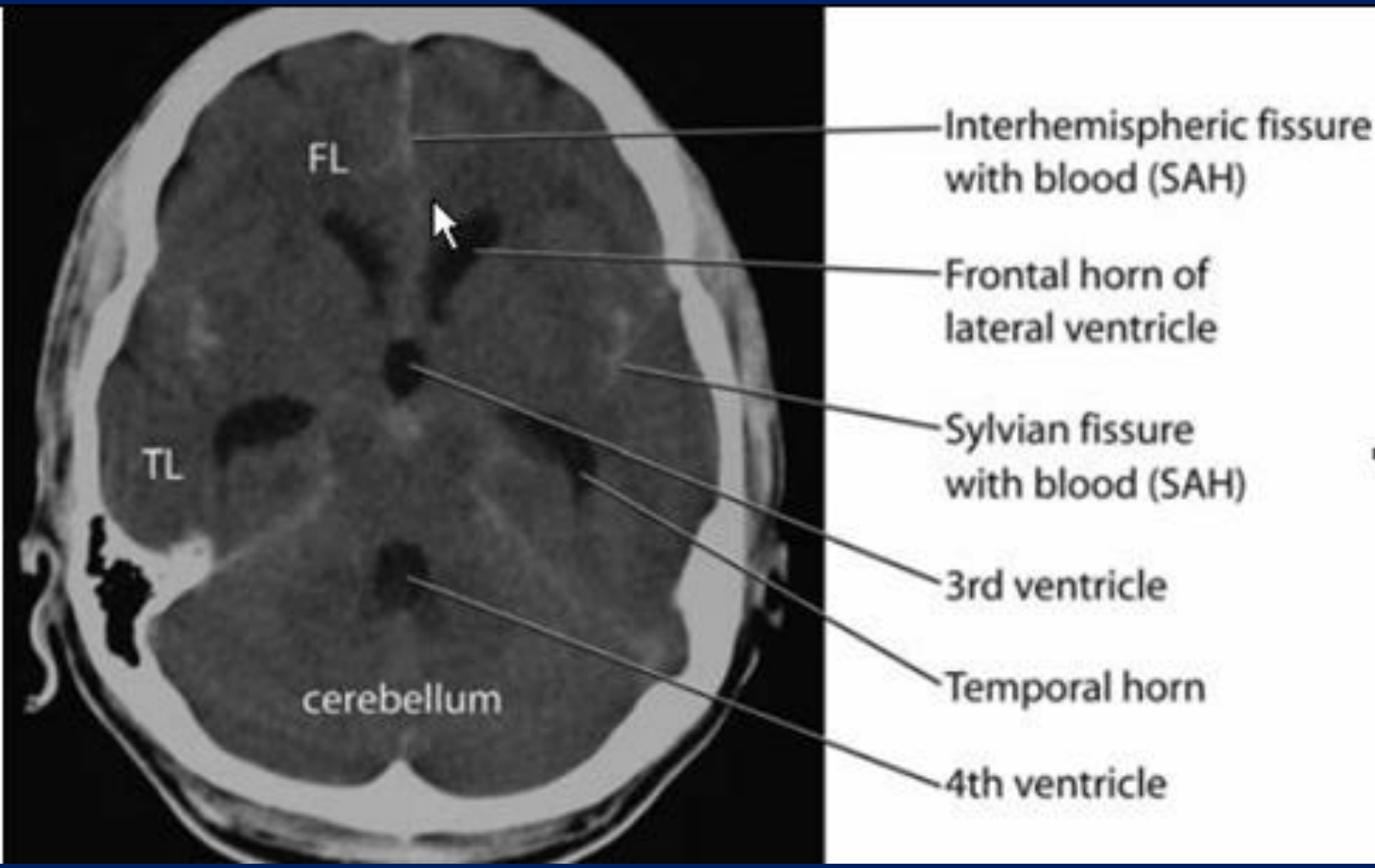

Third ventricle

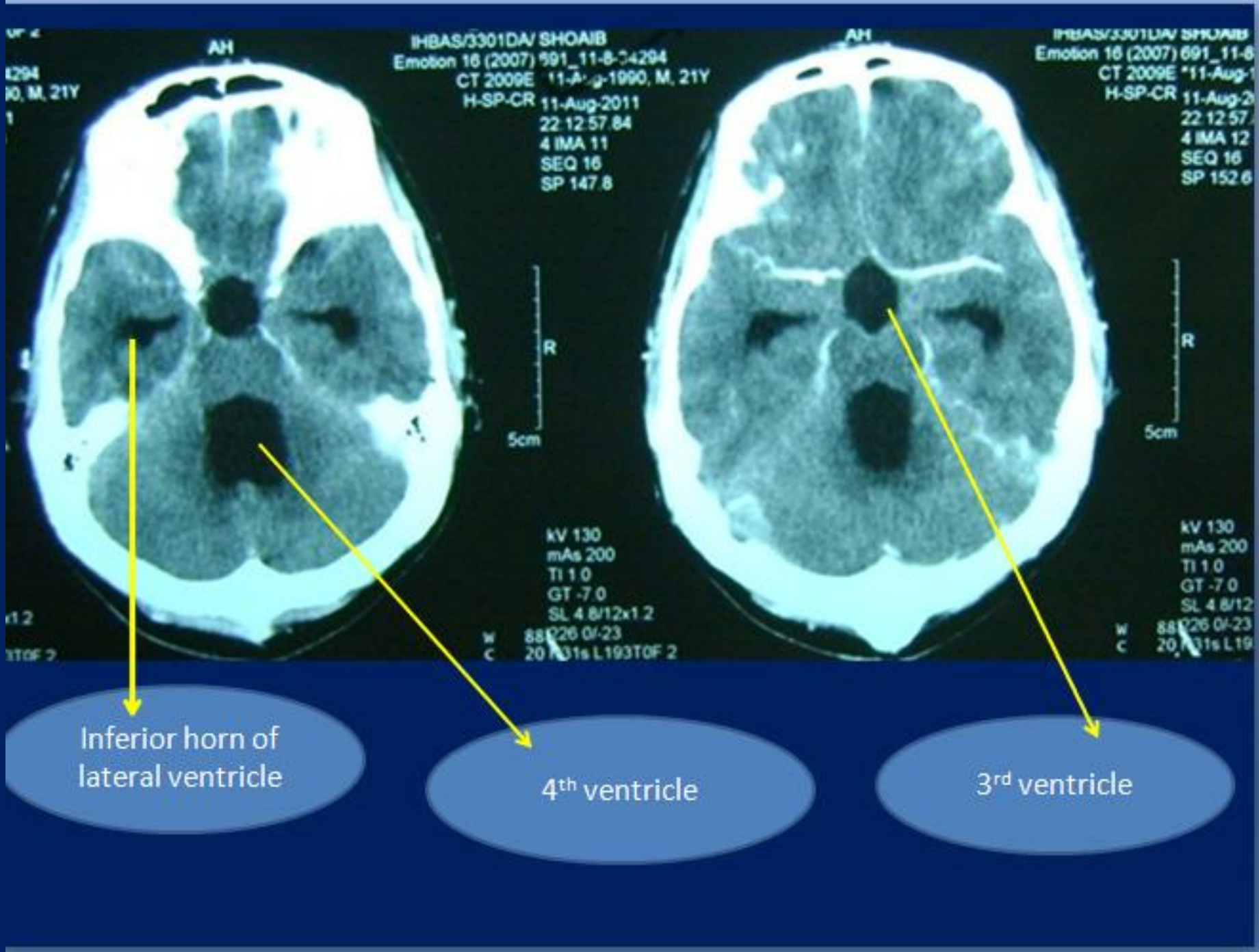

4th ventricle

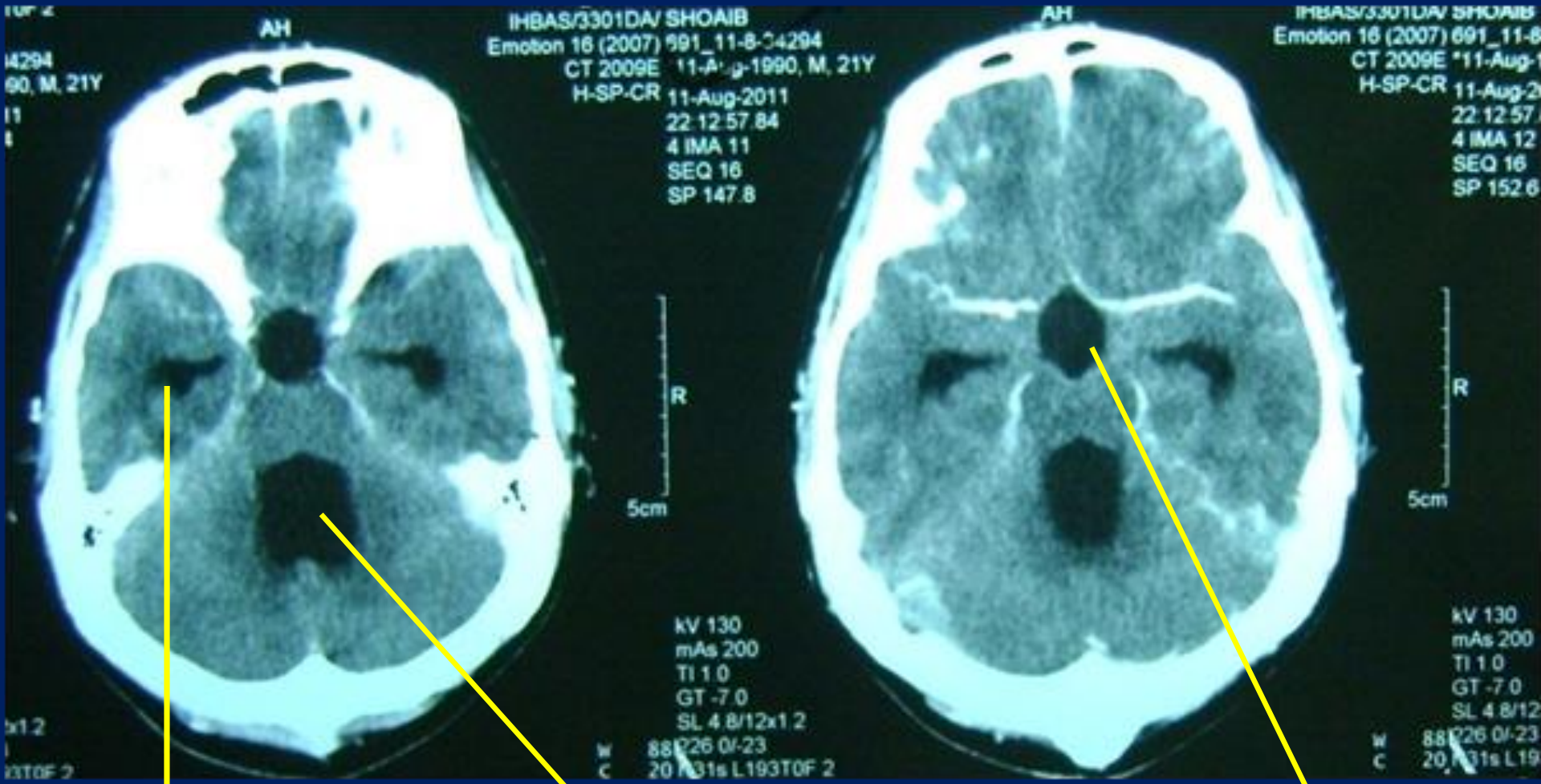
4th ventricle

4th ventricle


MRS.KHATUN-7 0Y
4th ventricle
PRANTO SPECIALIZED HOSP.
13451


FL
TL
cerebellum
Interhemispheric fissure with blood (SAH)
Frontal horn of lateral ventricle
Sylvian fissure with blood (SAH)
3rd ventricle
Temporal horn
4th ventricle


AH
IHBAS/3301DA/ SHOAIB
Emotion 16 (2007) 691_11-8-04294
CT 2009E 11-Aug-1990, M, 21Y
H-SP-CR 11-Aug-2011
22:12:57.84
4 IMA 11
SEQ 16
SP 147.8
R
5cm
kV 130
mAs 200
TI 1.0
GT -7.0
SL 4.8/12x1.2
W 88 26 0/-23
C 20 31s L193TOF 2
AH
Emotion 16 (2007) 691_11-8
CT 2009E *11-Aug-1
H-SP-CR 11-Aug-2
22:12:57.
4 IMA 12
SEQ 16
SP 152.6
R
5cm
kV 130
mAs 200
TI 1.0
GT -7.0
SL 4.8/12
W 88 26 0/-23
C 20 31s L19
Inferior horn of lateral ventricle
4th ventricle
3rd ventricle



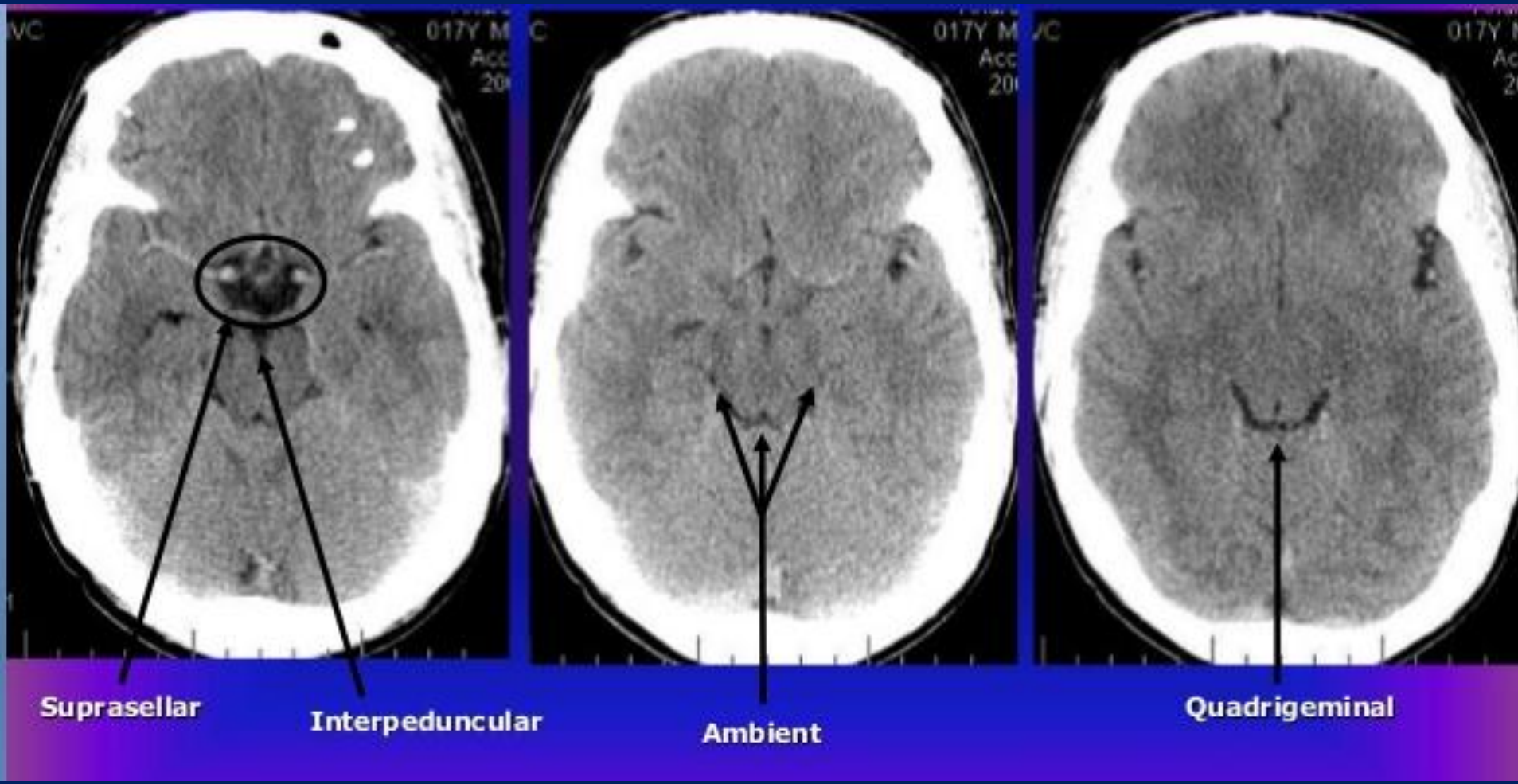
Inferior horn of lateral ventricle

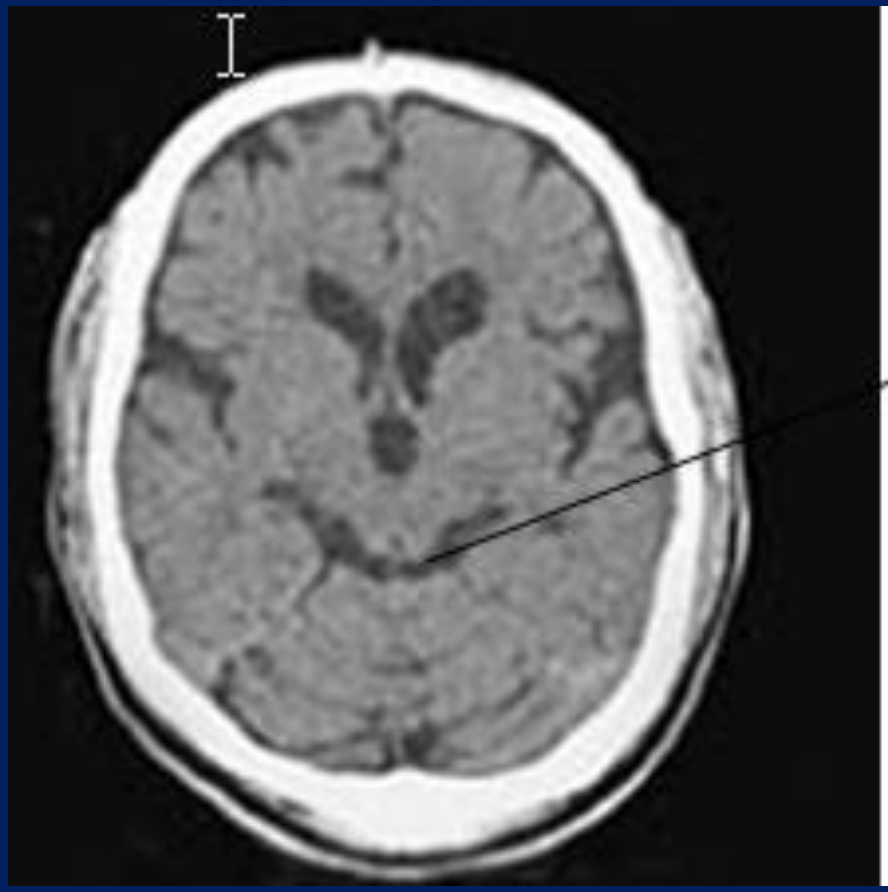
4th ventricle

3rd ventricle

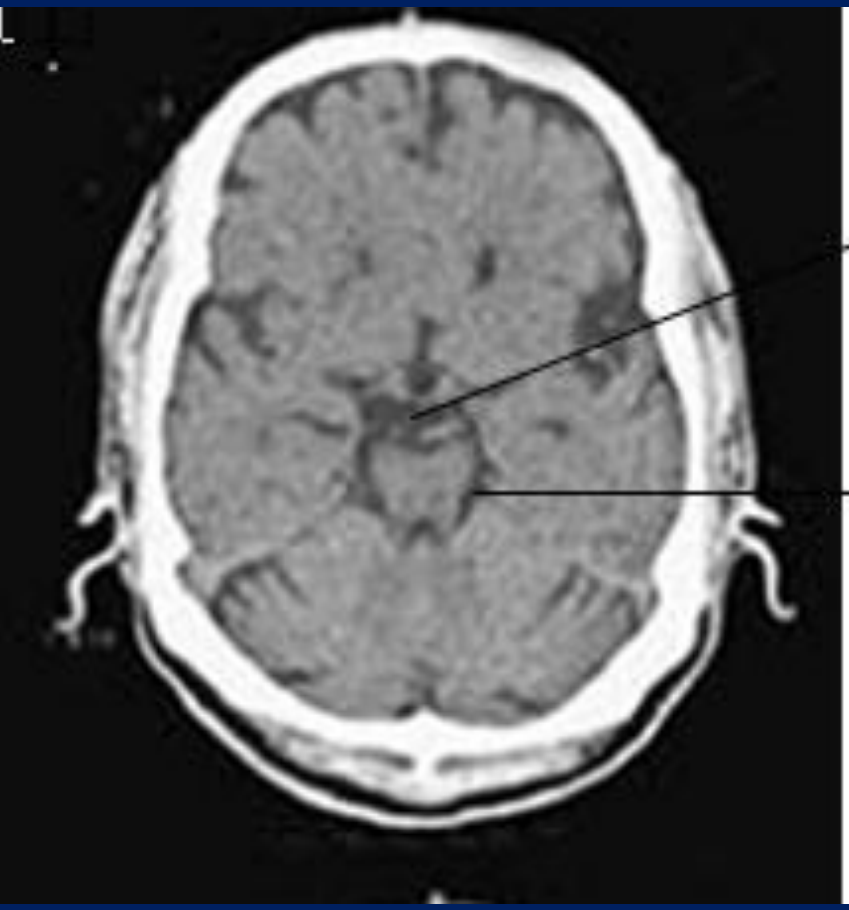

Anterior horn of lateral ventricle
Third ventricle
Post horn of lateral ventricle

Cistern


Suprasellar
Interpeduncular
Ambient
Quadrigeminal



Quadrigeminal cistern /
ambient cistern



Suprasellar cistern

Inter pedencular cistern

What will u look for during reading a CT can slide?

- Any abnormality or dissimilarity between two half (right and left)
- Any change density (hypo or hyper dense , mixed density)
- Midline shifting
- Ventricular effacement
- Extra dural and sudural haematoma
- Subarachnoid haemorrhage
- Intraventricular haemorrhage
- Ventricular dilatation (Hydrocephalus **)**

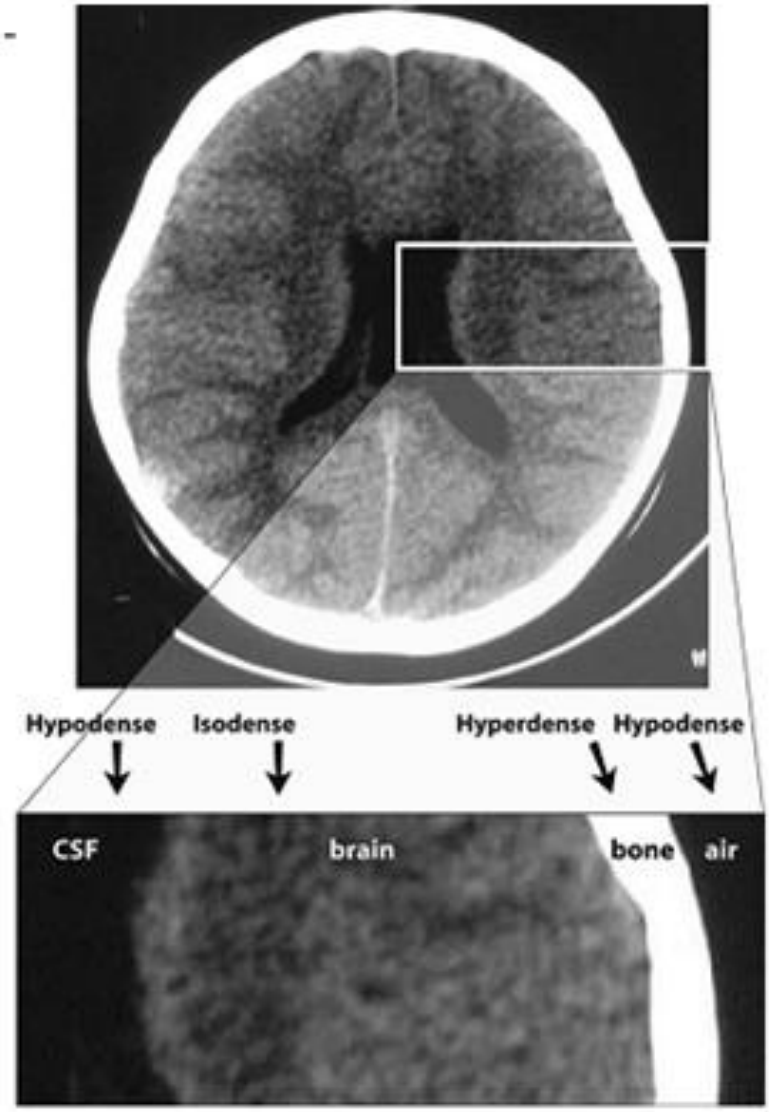
CT scan of brain

It has 3 densities

iso dens –brain

Hypo dens ---CSF

Hyper dense ---bone



Here density means = whiteness

Hypo dens = is black

Normally found in CSF

Abnormally is infarction

Peri lesional edema

Hyper density = bright white

Normally is the

bone / calcification

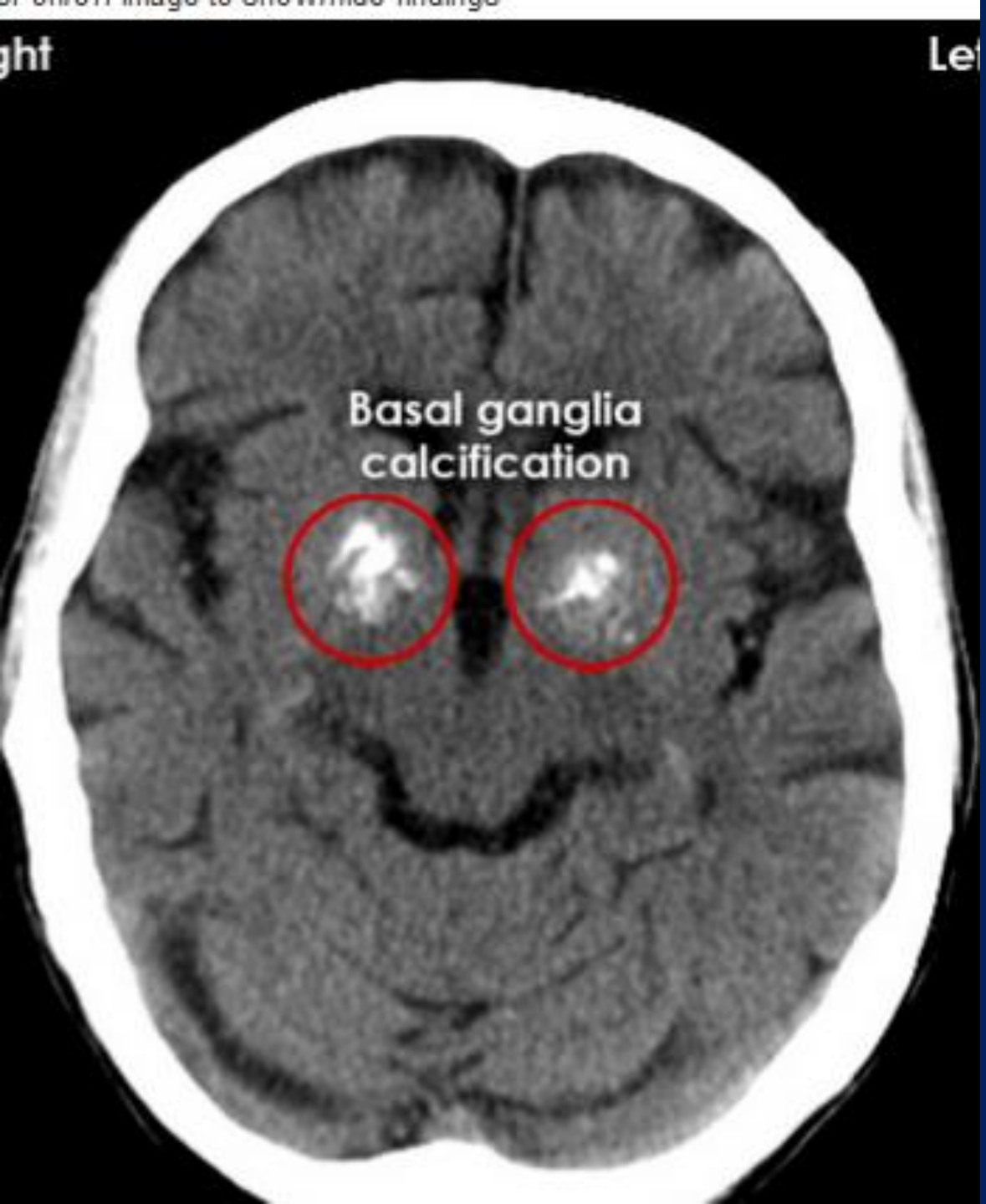
Abnormally hemorrhage

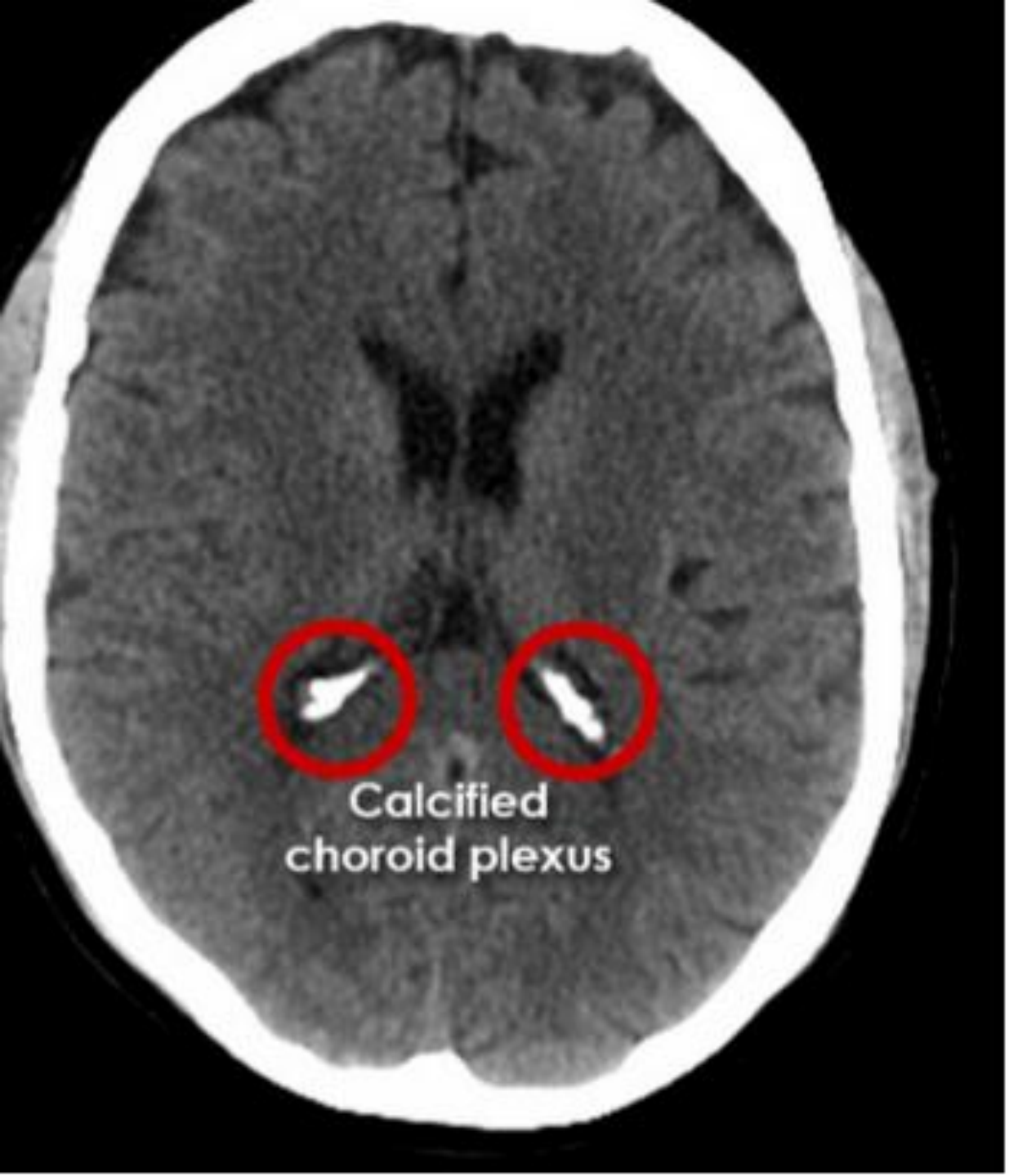
Iso-dens= it is the colour in between black@ White

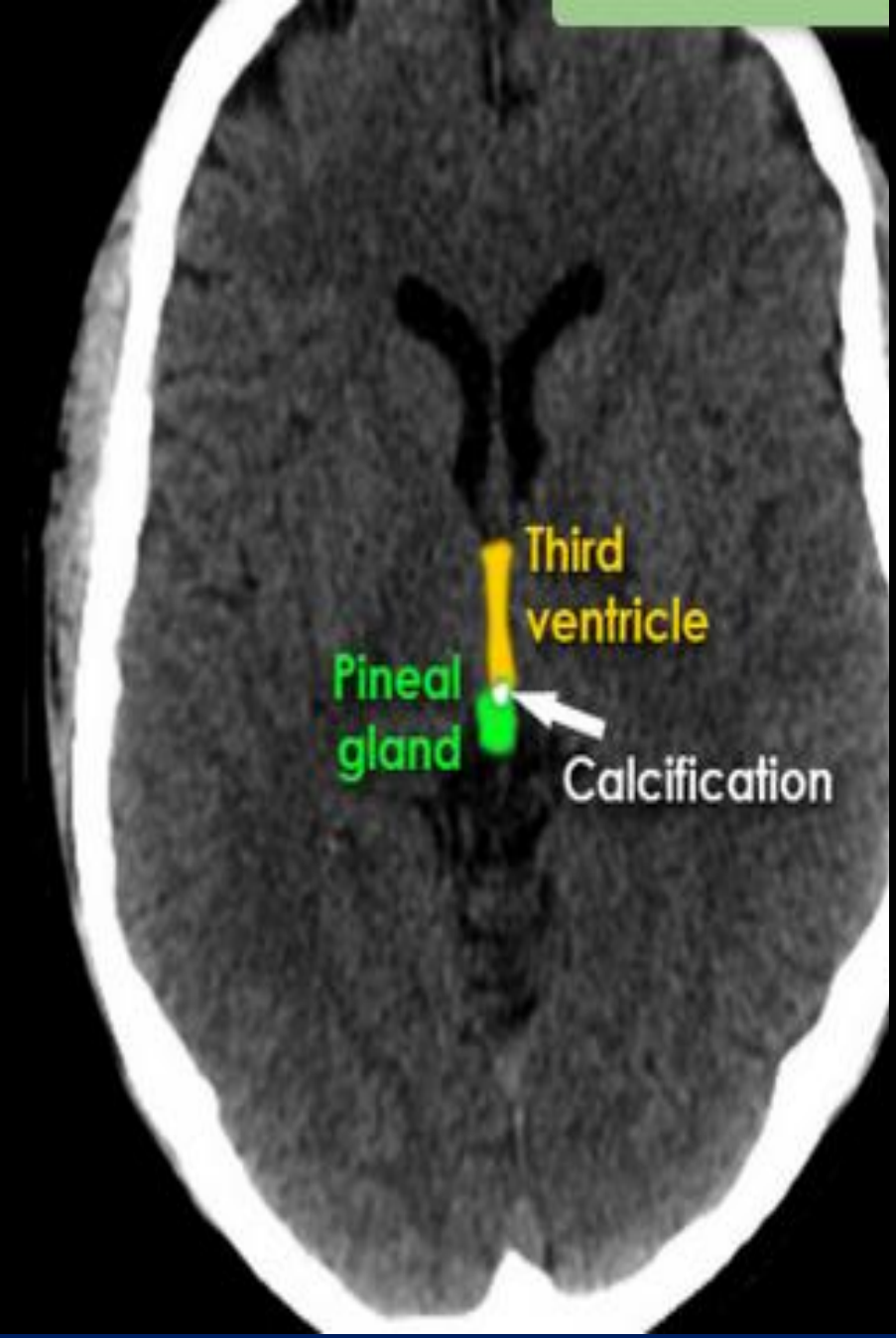
Normally brain matter

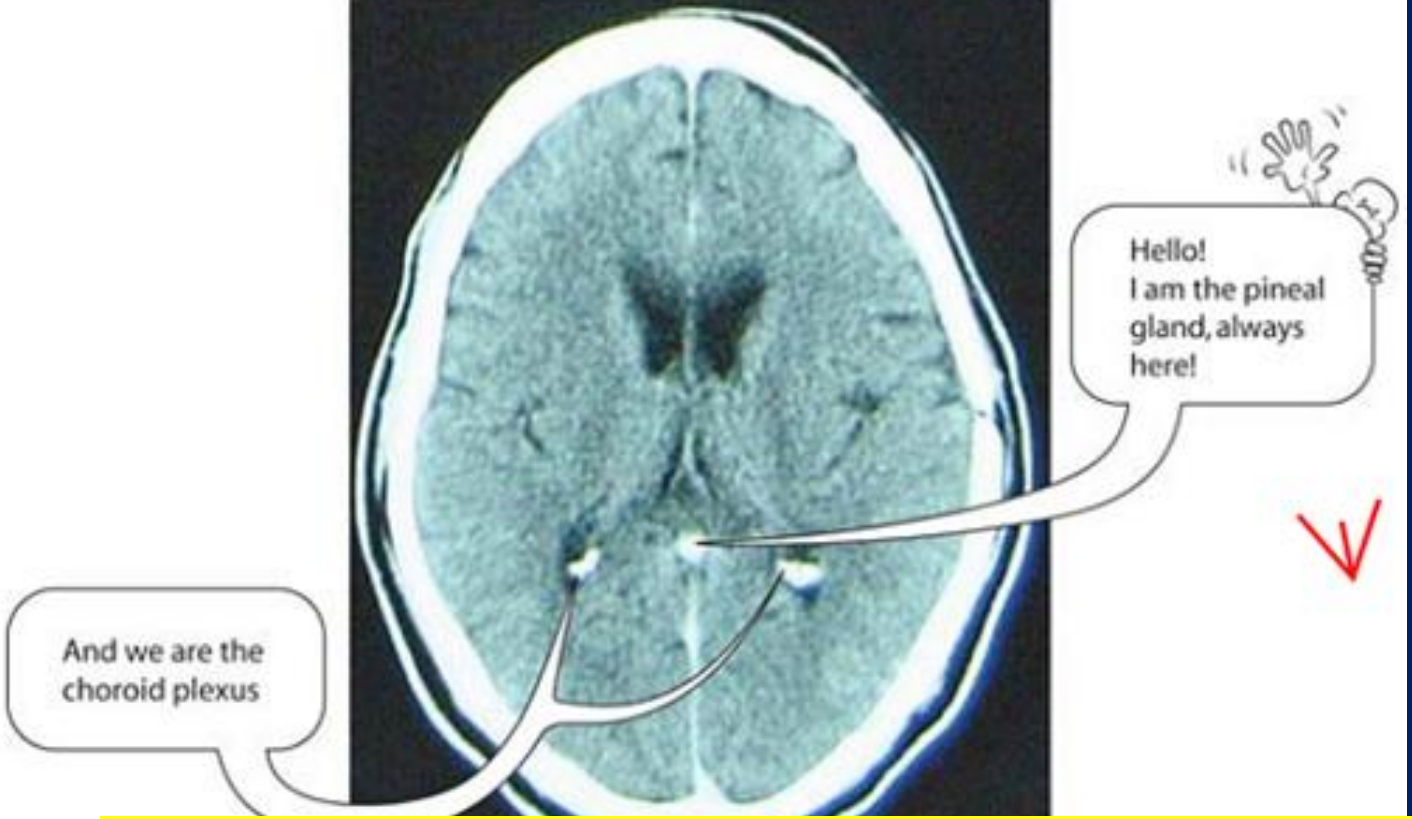
Rule of thumb is that' anythingWhite in the CT scan is either blood or bone'.

Calcification


ght
Le
Basal ganglia
calcification


Calcified
choroid plexus


Third
ventricle
Pineal
gland
Calcification



U may see calcification in the ventricle.

Two important site of calcification is

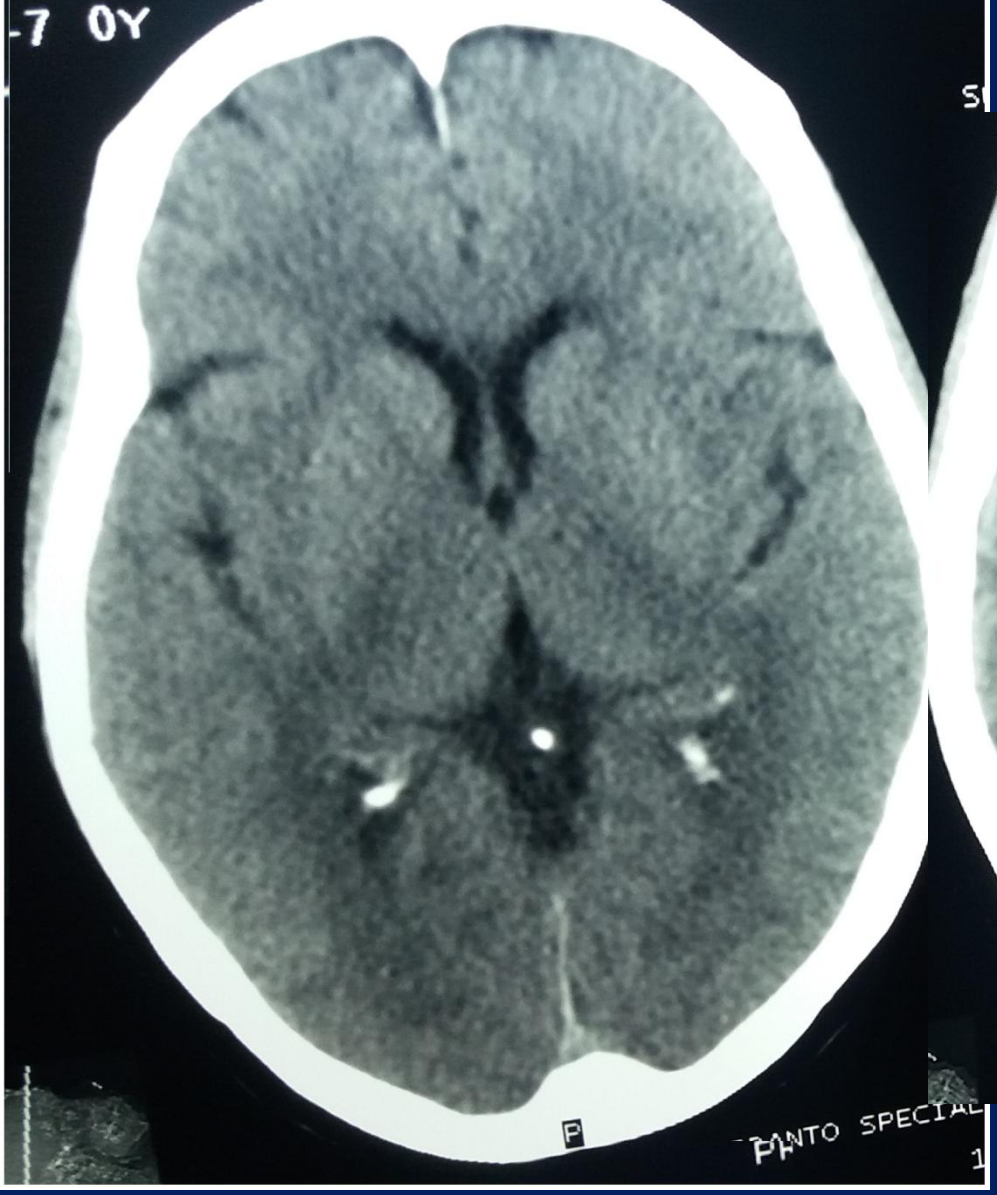
Choroids plexus

Pineal body calcification

How will u differentiated between calcification from hemorrhage?

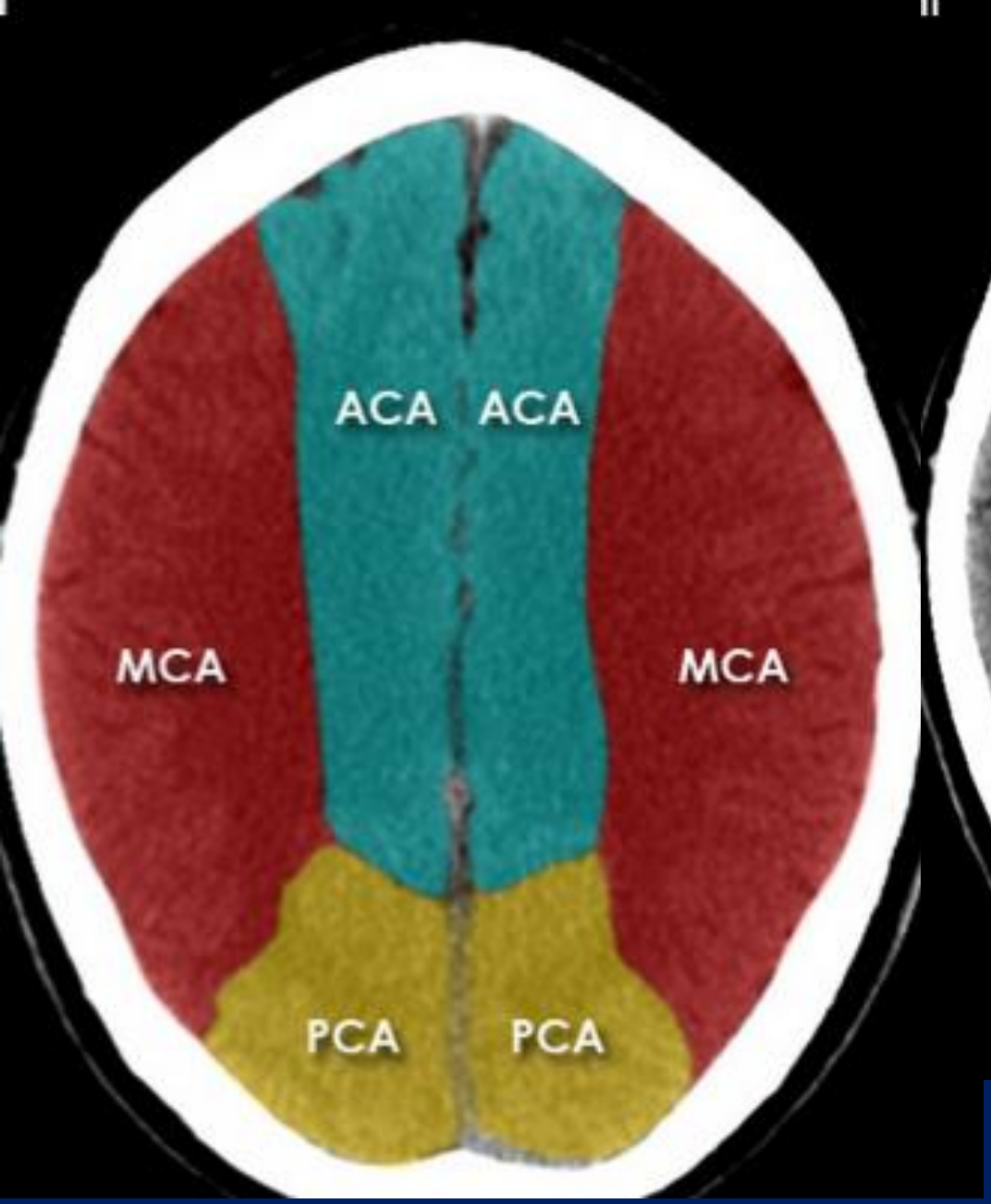
Calcification has always equal density like Skull bone of corresponding film

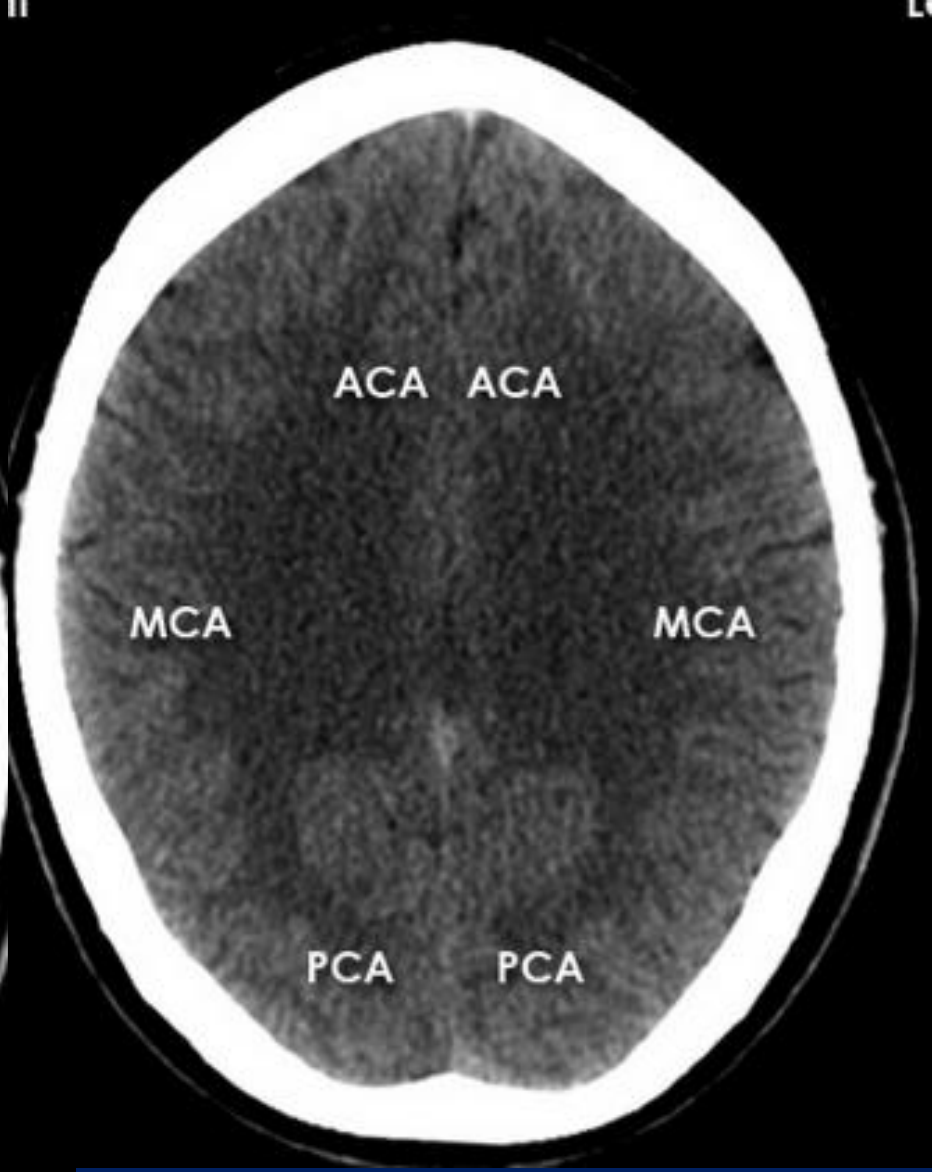
Hemorrhage slightly less hyper dens then skull bone of the corresponding film

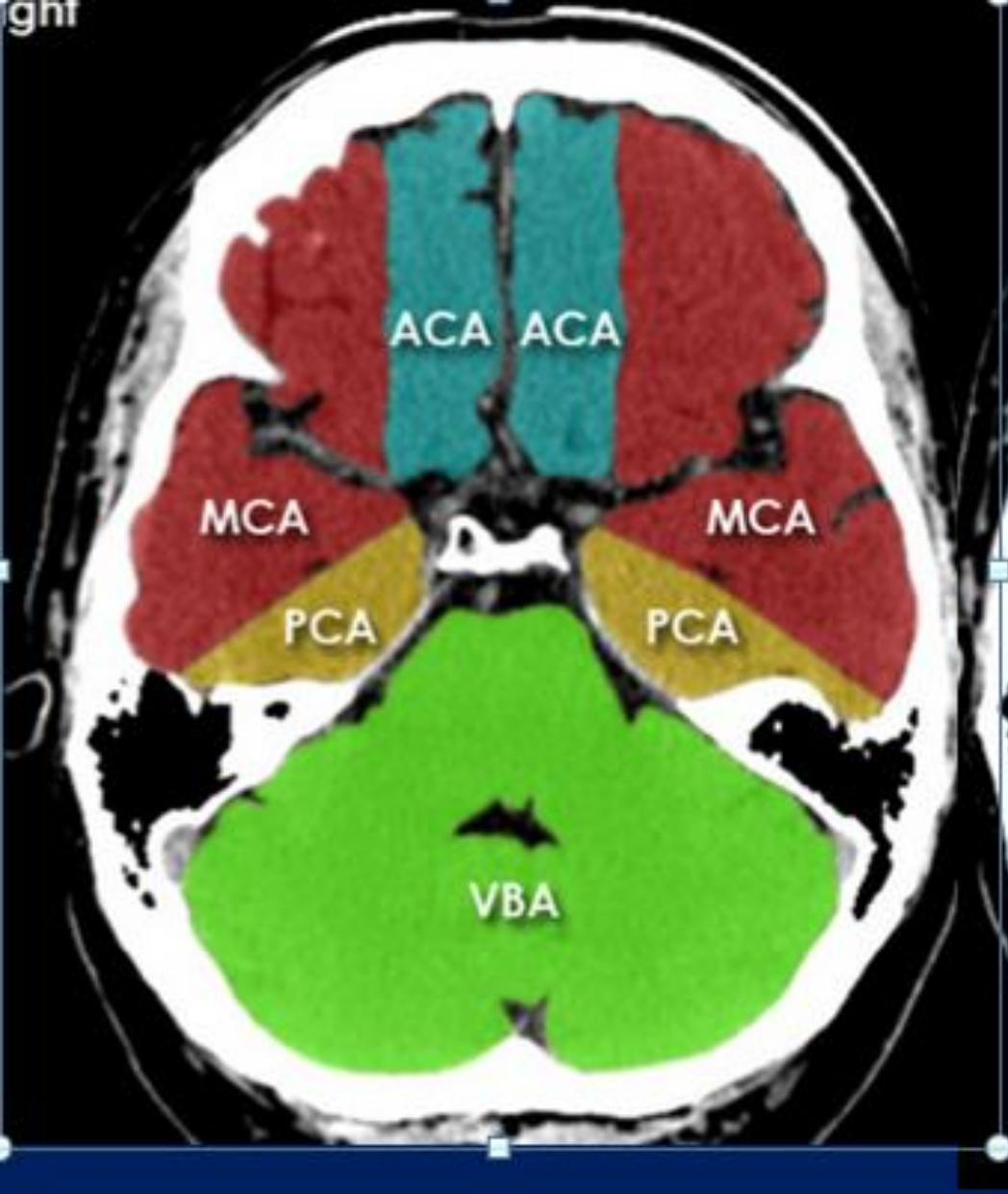

-7 0Y
P
PANTO SPECIAL

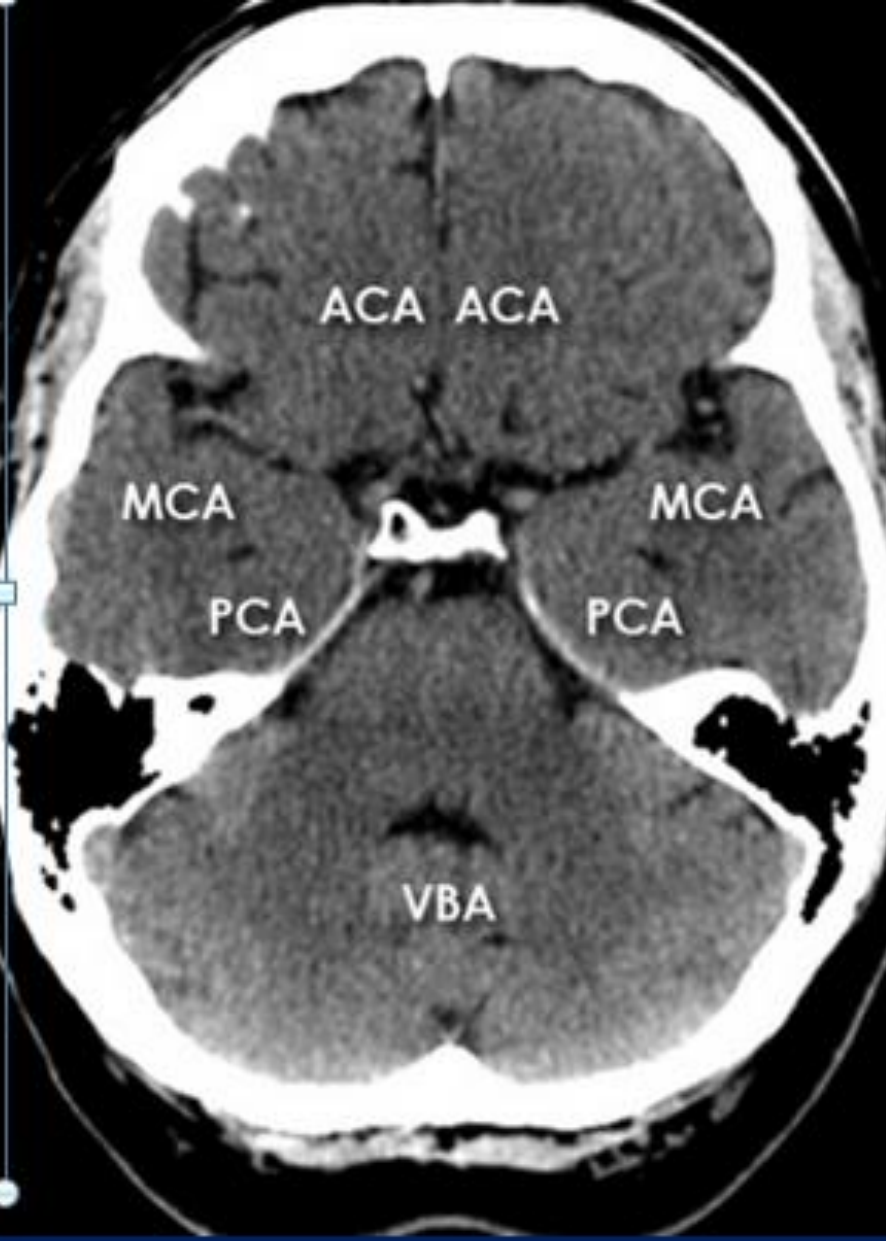

SPECIALIZED

Blood supply


ACA ACA
MCA
MCA
PCA PCA


ACA ACA
MCA
MCA
PCA PCA


ACA ACA
MCA
MCA
PCA
PCA
VBA


ACA ACA
MCA
MCA
PCA
PCA
VBA

Stroke

Stroke is two types

One is ischaemic

Second Is hemorrhagic

Heamatoma with out ventricular extension

Heamatoma with ventricular extension (2ndary SAH)

Third primary sub arachnoid hemorrhage (SAH)

In **CT scan ischaemic stroke appear**

As hypodens –that is black in color

Look "THOSE" in ischaemic stroke

THOSE

T— Stands for Vascular Territory

H— Stands for Hypodensity

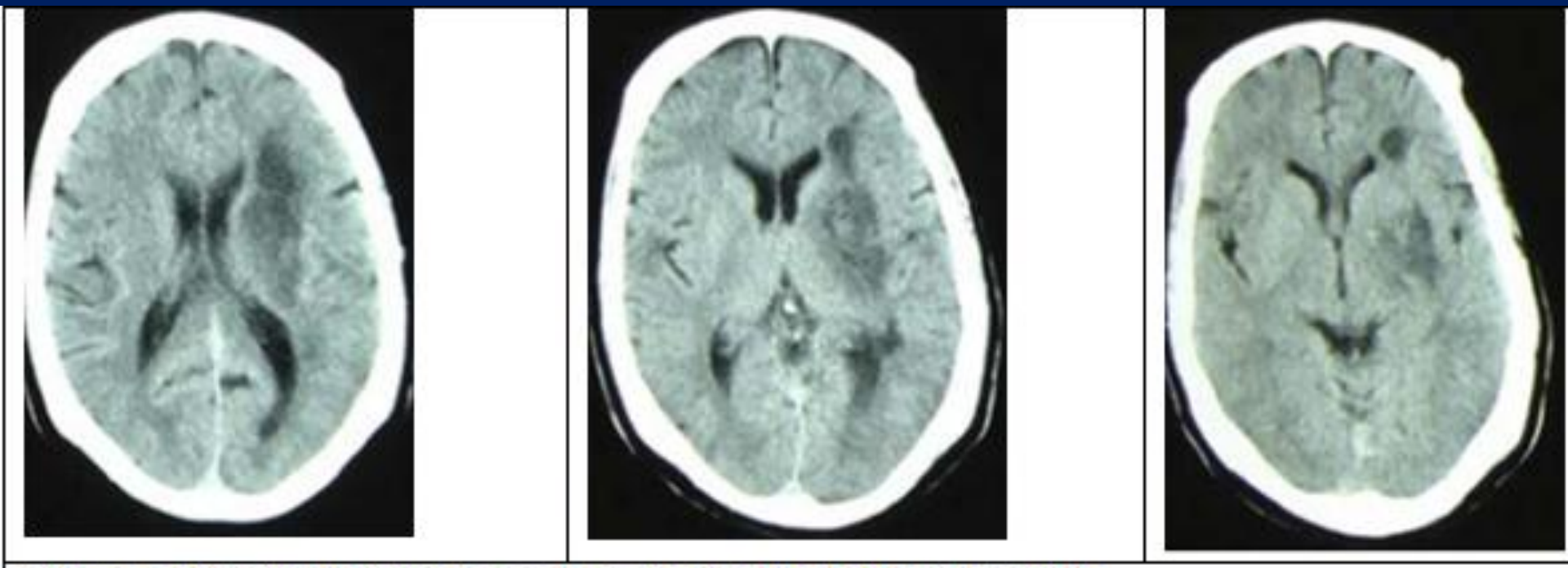
O— Stands for Oedema

S— Stands for Swelling and Shifts

E— Stands for Evolution

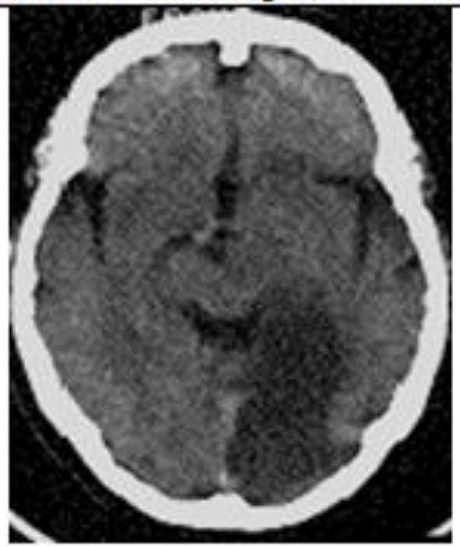
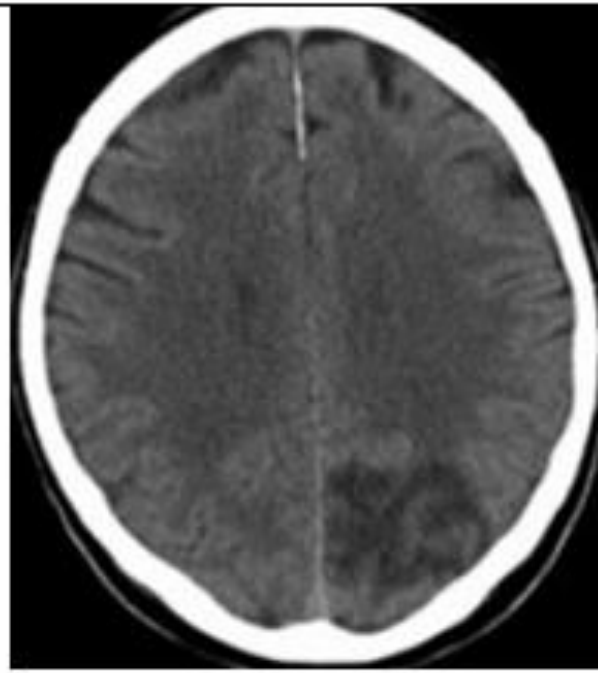
Most of the stroke occurs in the ganglio –thalamic capsular region

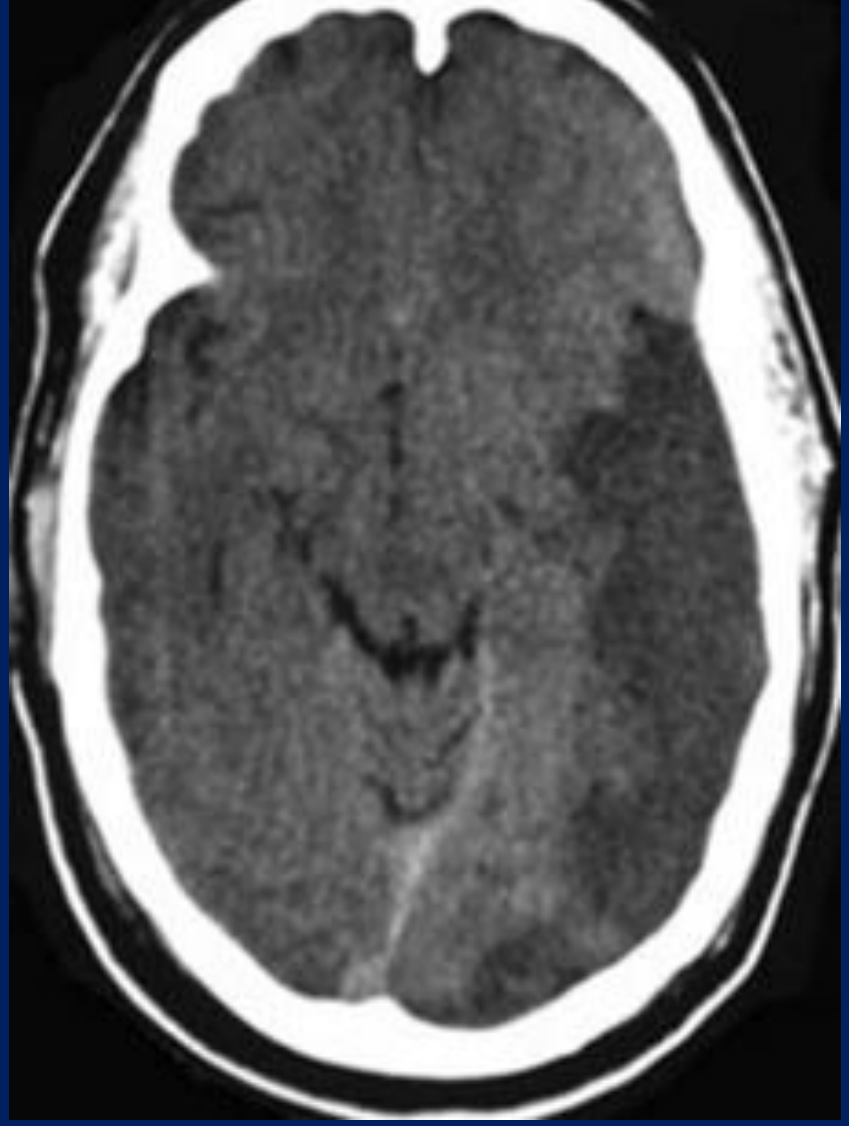
Which is supplied by the lenticulostrial branch of the middle cerebral artery:



CT scan of brain showing hypo dens area in the left basal ganglia

Infarction of posterior circulation

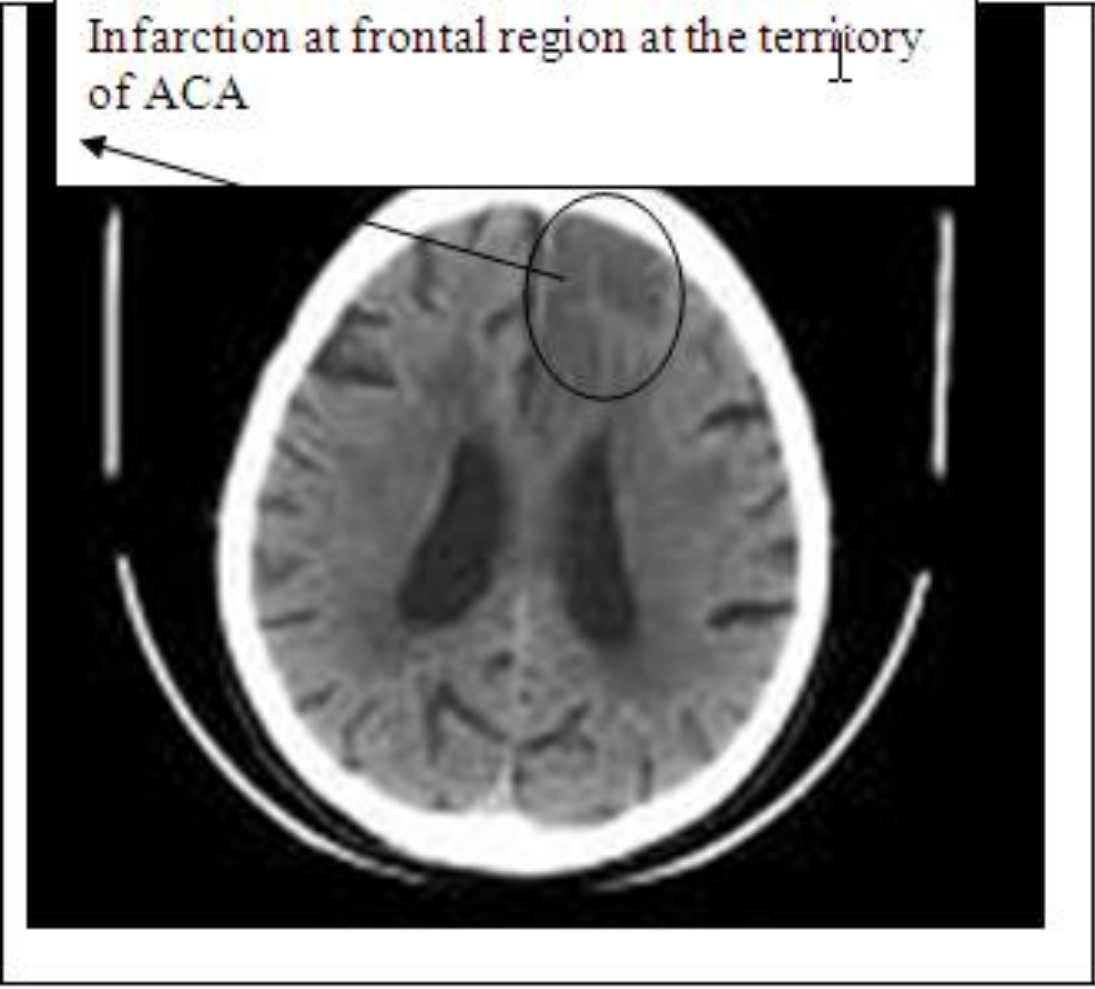
		
Occipital lobe	Cerebellum	Occipital

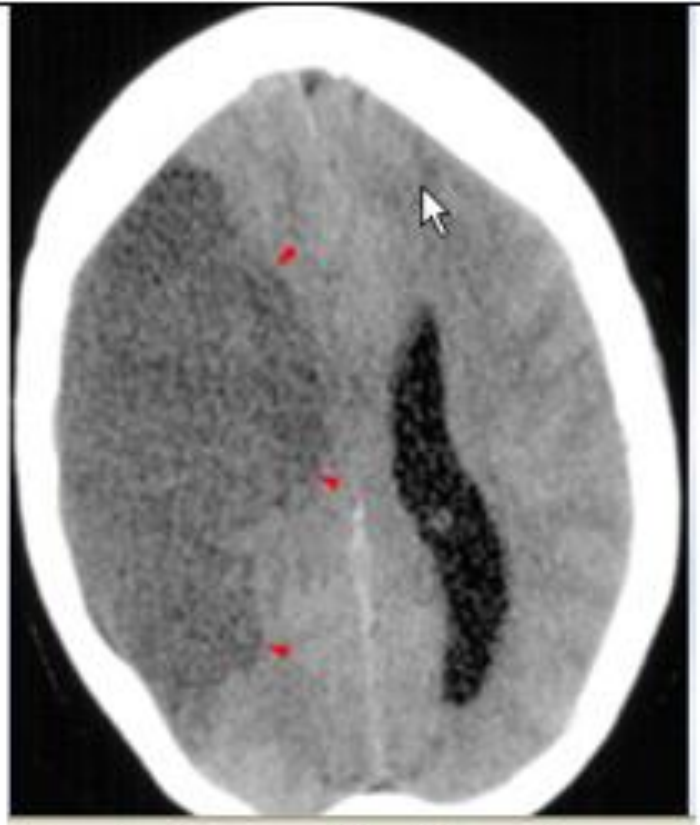


CT scan showing hypo density in area that supplied by the left middle cerebral artery posterior division infarct.

Infarction (hypo dens) of left MCA with midline shifting and ventricular effacement

Infarction and midline shifting and ventricular effacement





sharply circumscribed hypodense edema (arrowheads)
in the right middle cerebral artery territory

Hemorrhagic stroke:

In brain haemorrhage may occur in several way

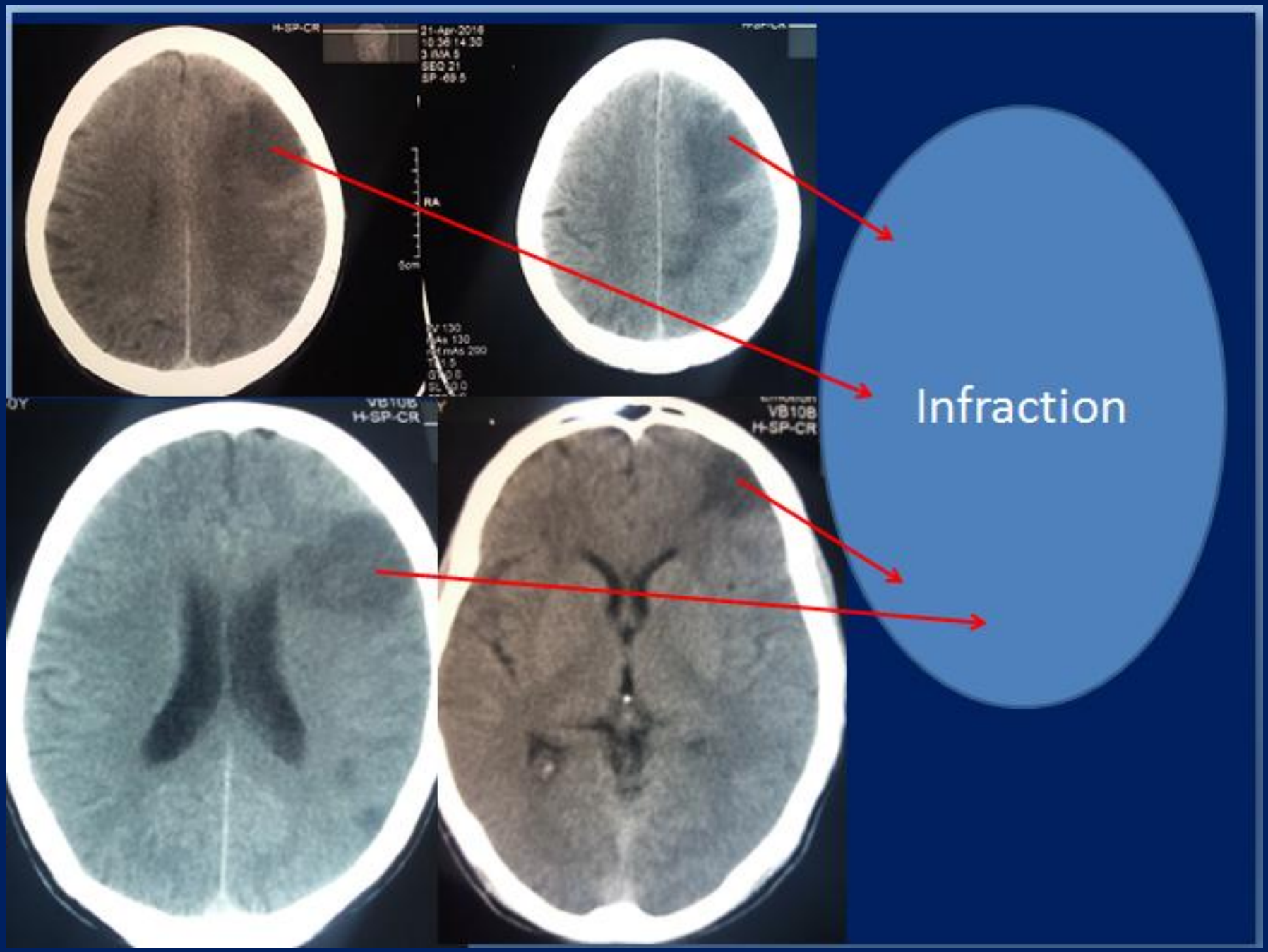
Out side the brain

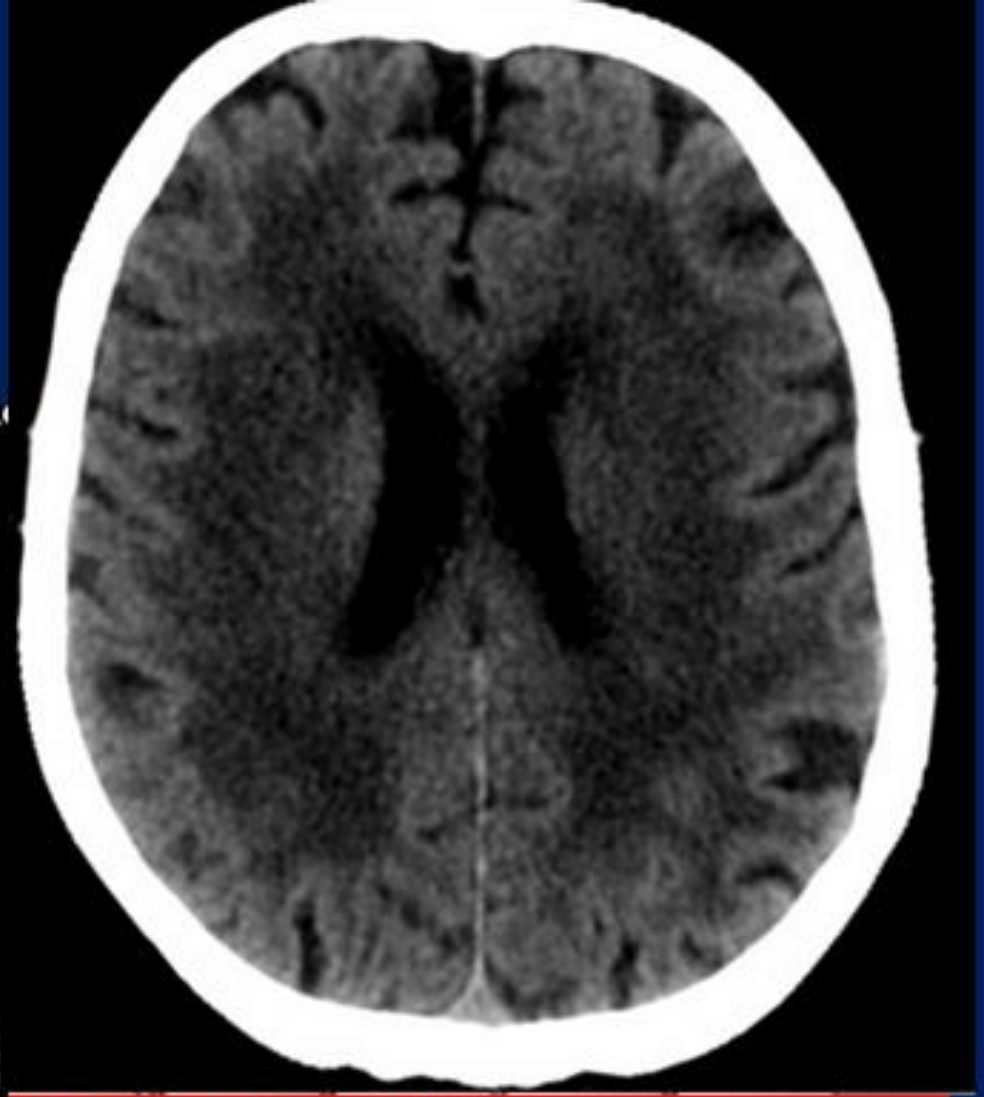
- Subdural and
- Extradural haematoma

In side the brain

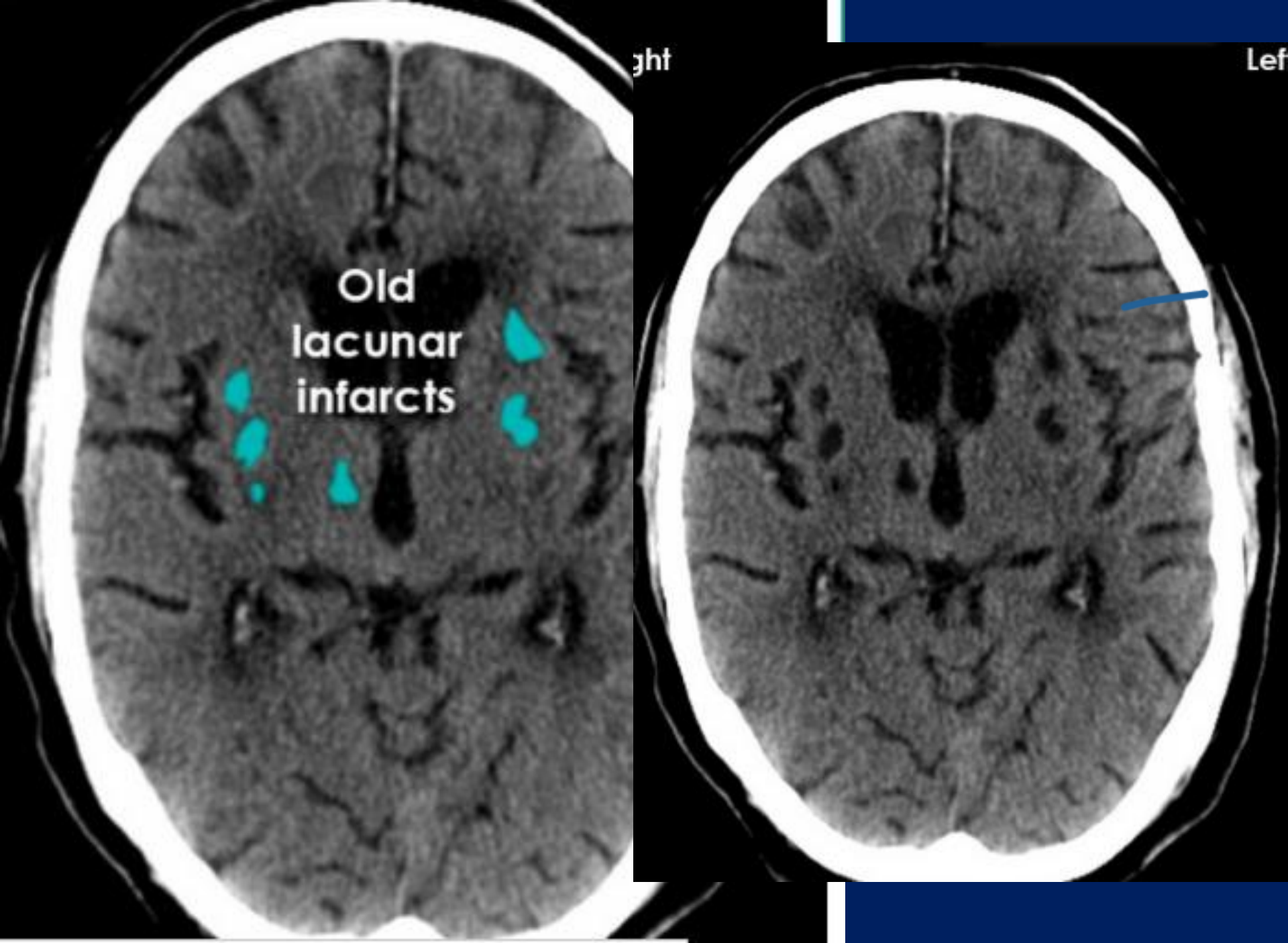
- Intra cerebral haematoma without ventricular extension
- Intra cerebral haematoma with ventricular extension
- Primary subarachnoid hemorrhage

In CT scan it appear hyper dens that is white

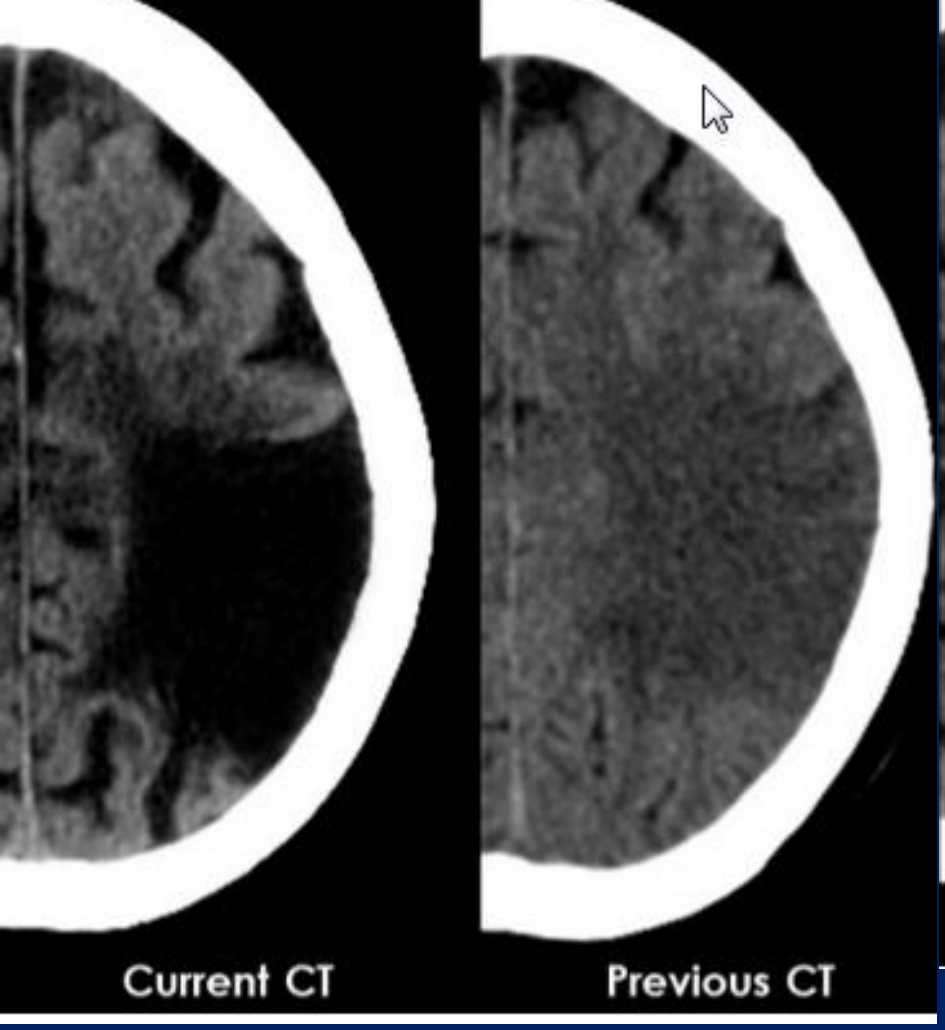

Infraction

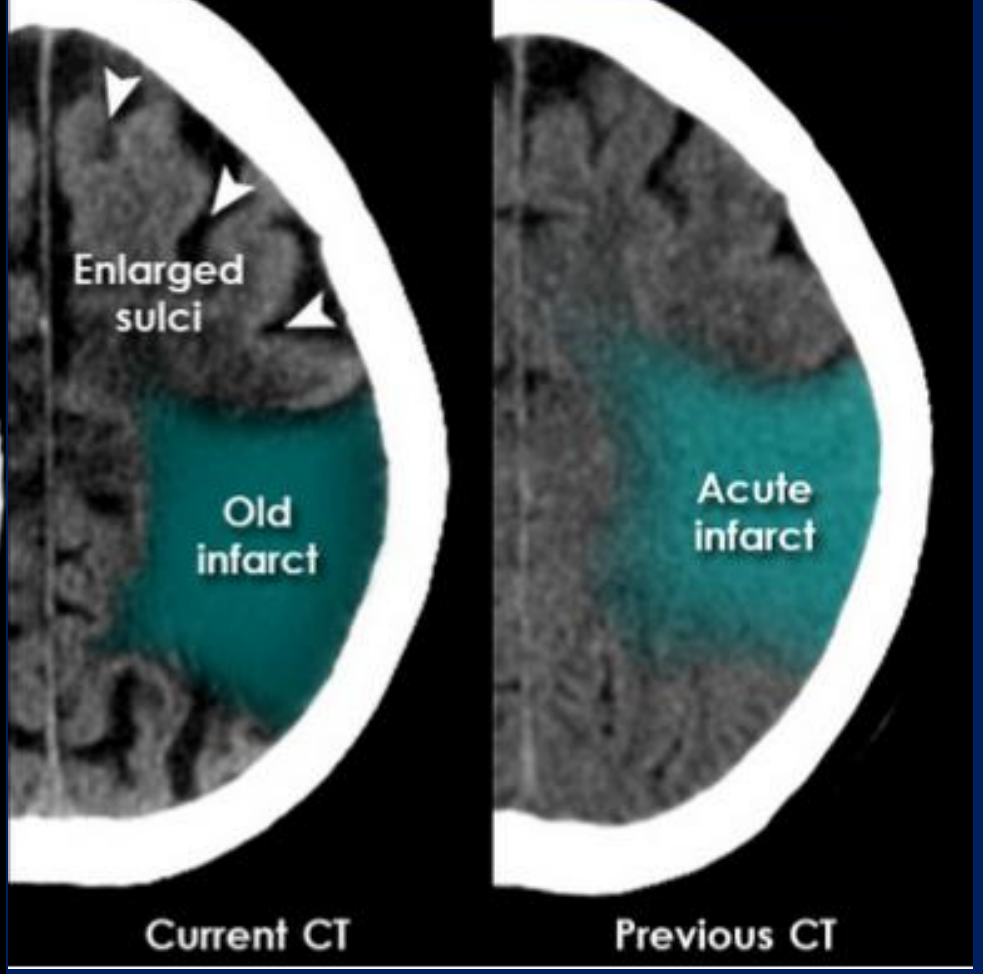


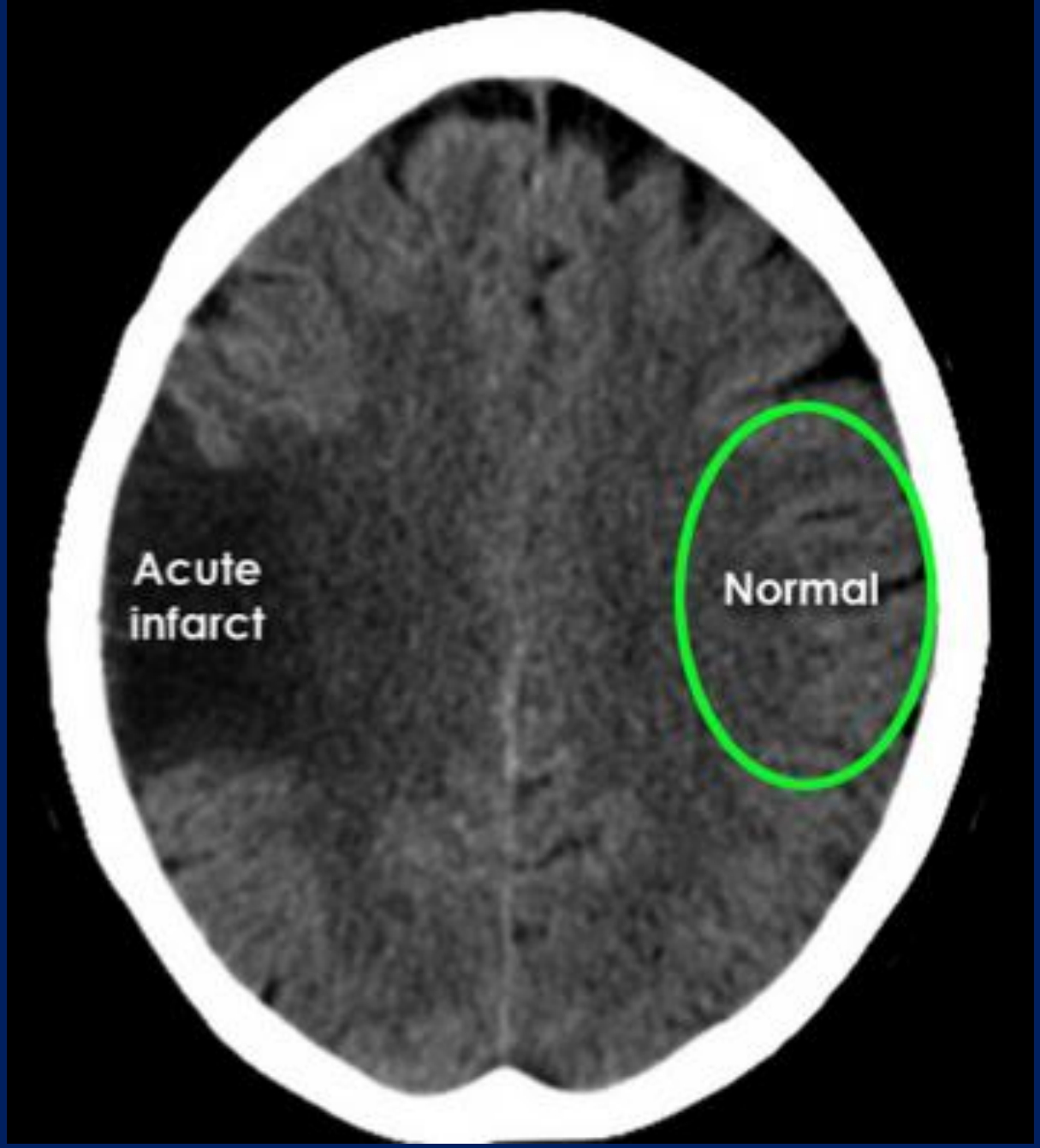
Chronic small vessel disease
Patchy low density of the cerebral white matter is a sign of chronic small vessel disea

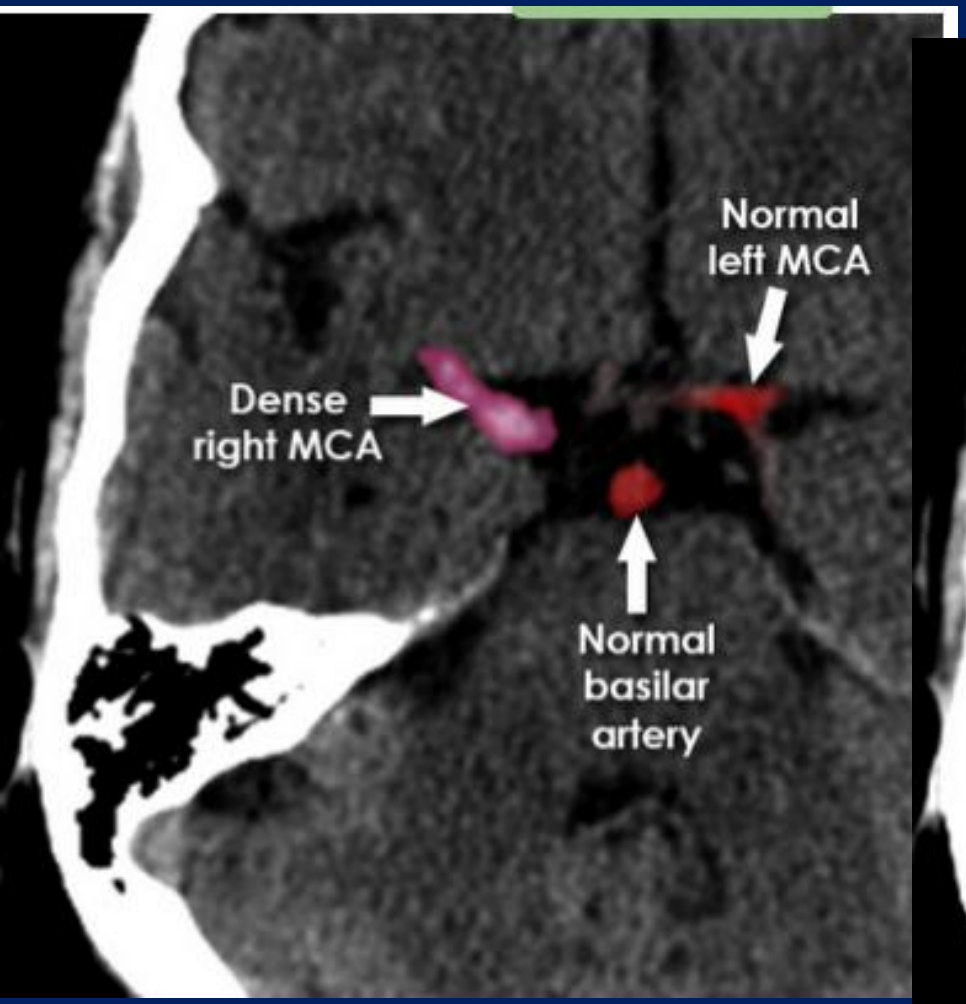


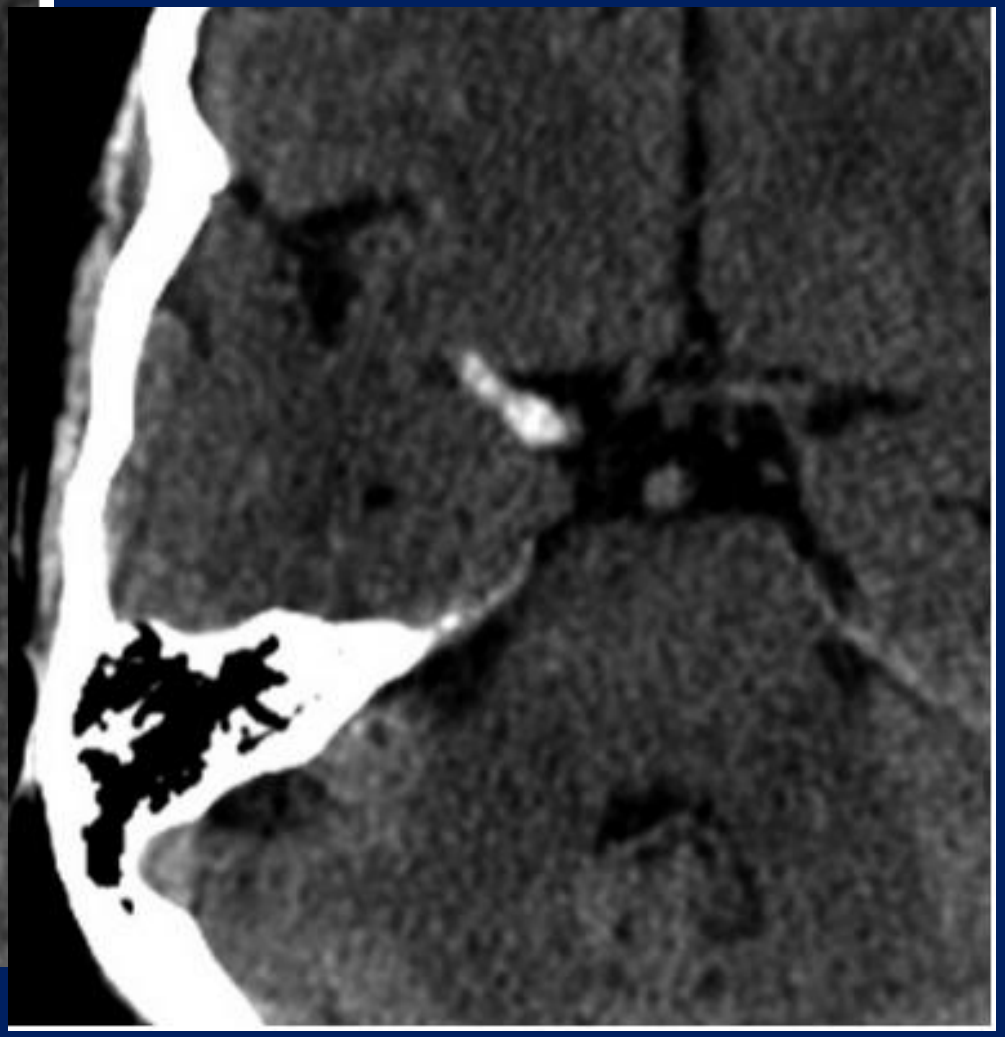
ct_acute_brain/ct_brain_chronic_ischaemia#top_2nd_img


Current CT
Previous CT

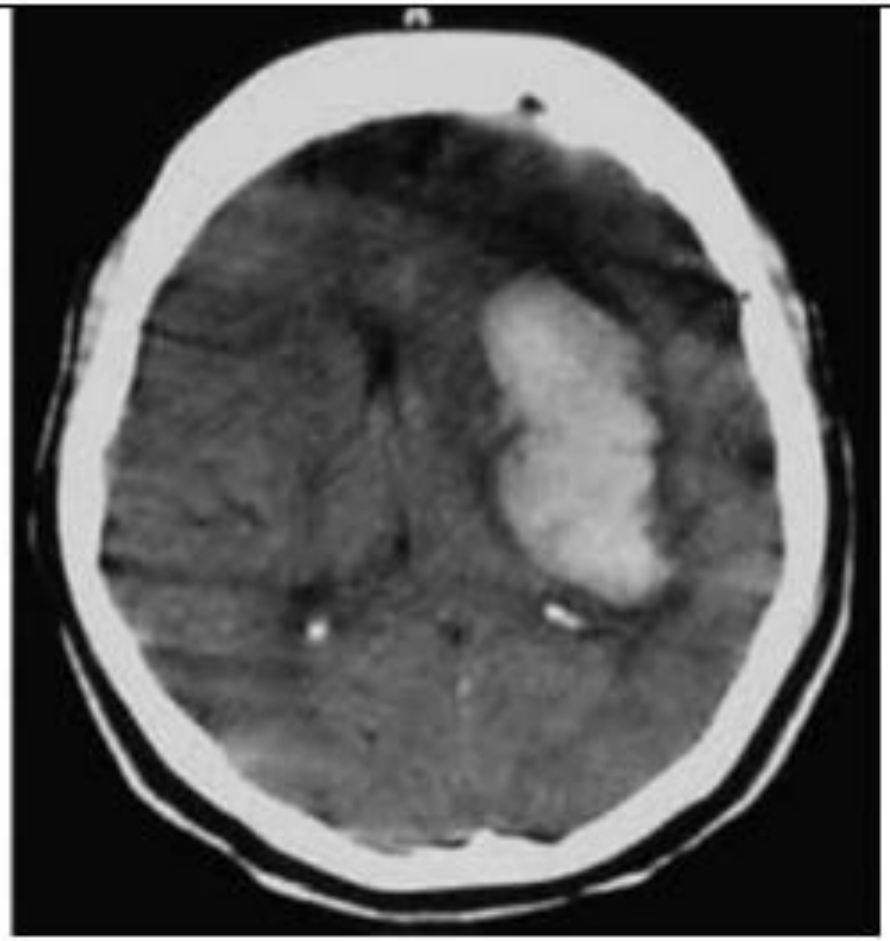

Enlarged sulci
Old infarct
Acute infarct
Current CT
Previous CT


Acute
infarct
Normal


Normal
left MCA
Dense
right MCA
Normal
basilar
artery

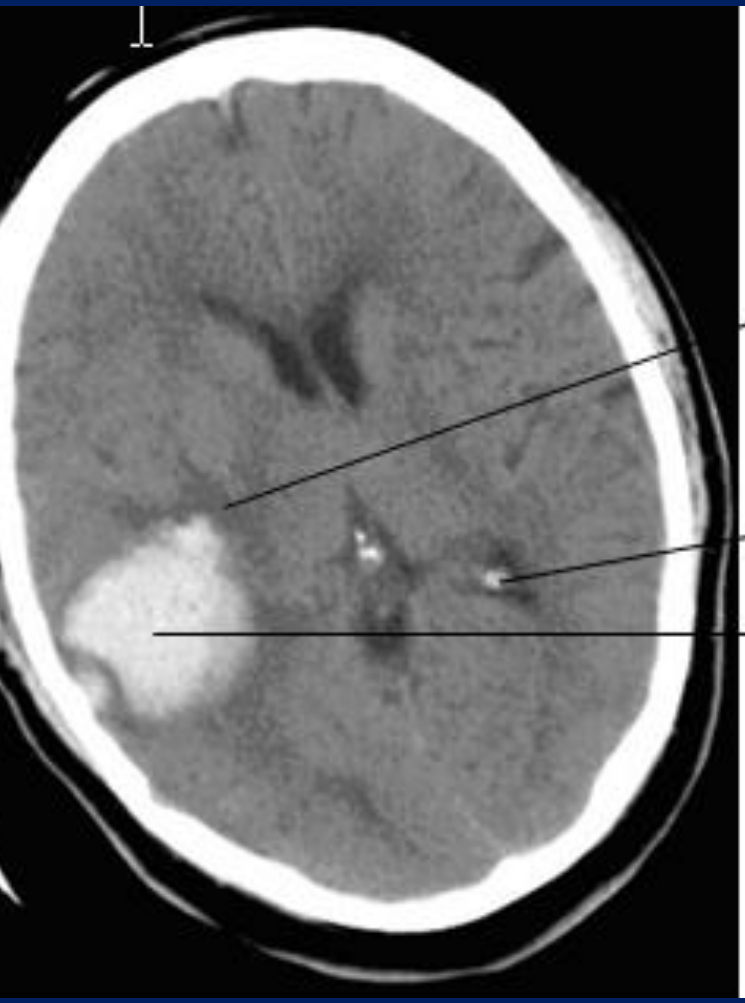


Hemorrhagic stroke



Intra cerebral haematoma without ventricular extension . the white in ven. Is calcification

Intra cerebral haematoma

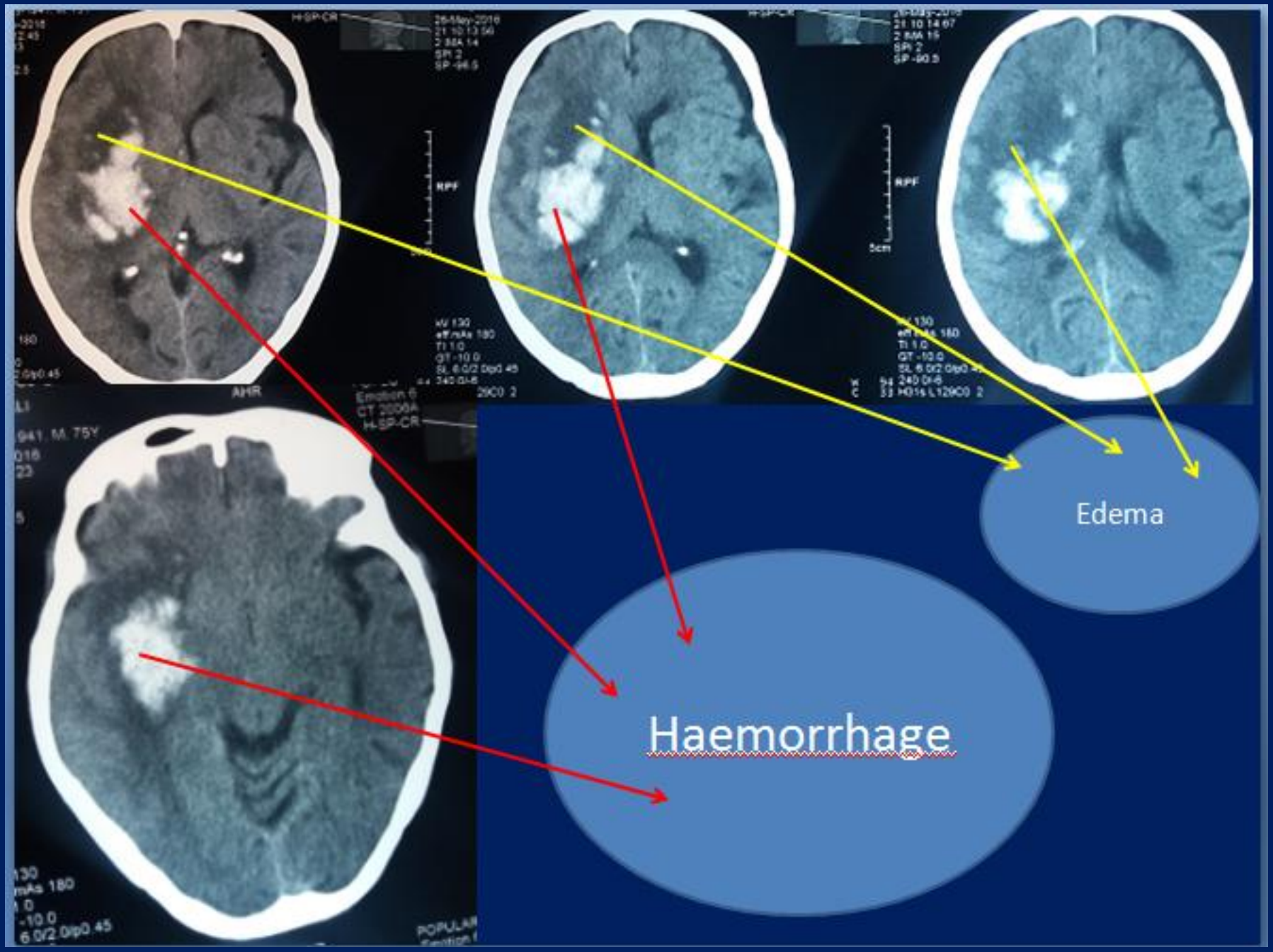


Black are peri lesional edema

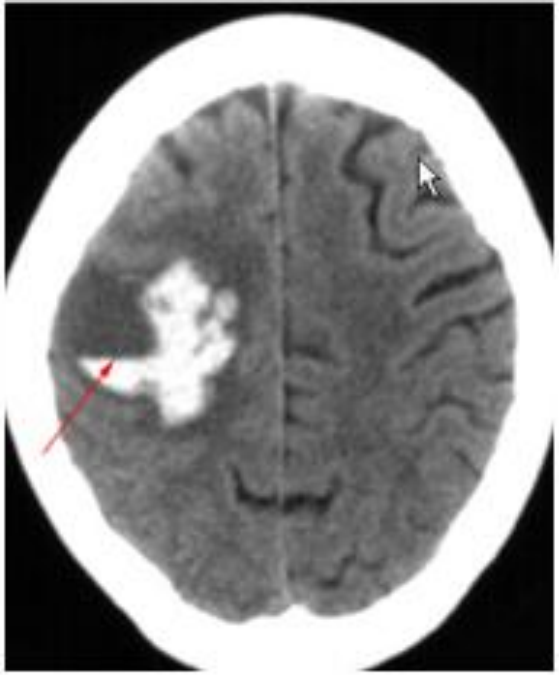
Choroids plexus calcification

Haemetoma

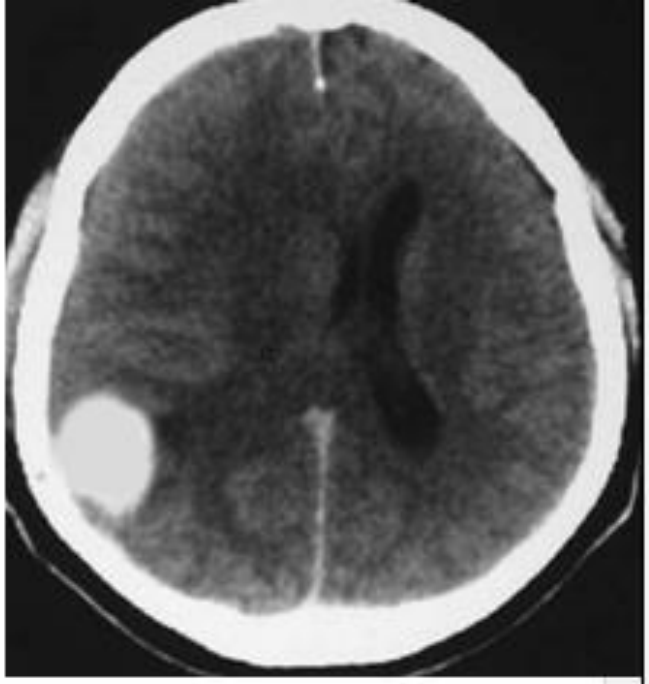
It is in the ganglio thalamic capsular region due to
Uncontroll HTN and irregular taking of anti HTN drug


Edema
Haemorrhage

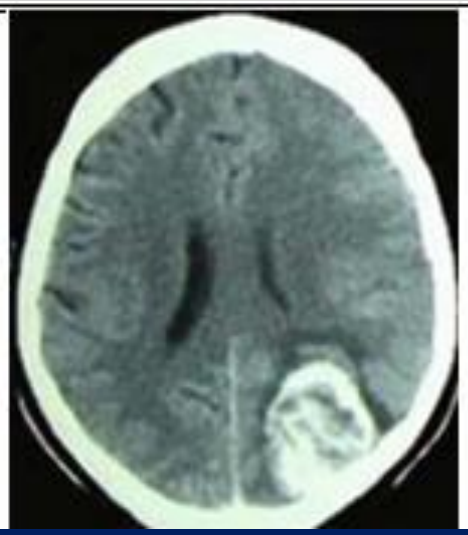
Hypertensive Hemorrhage at the basal ganglia region

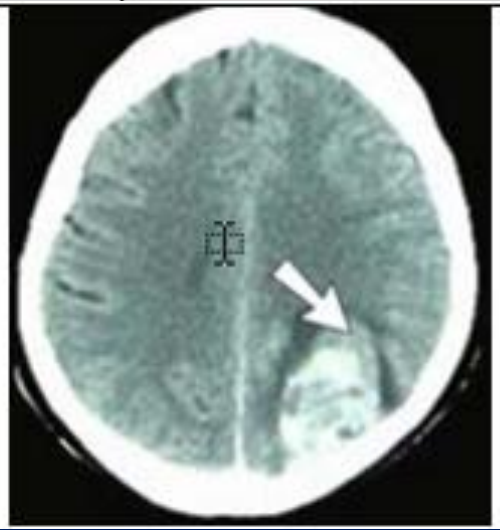


A fluid level within a hematoma suggest coagulopathy

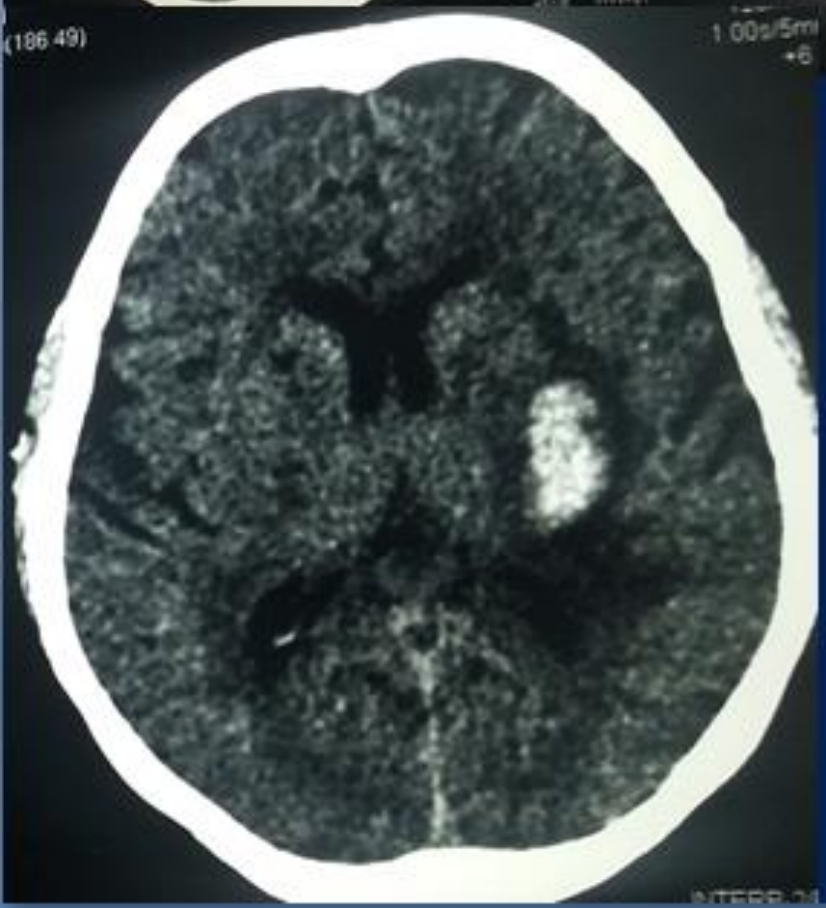


Intracerebral haematoma 2ndary to an AVM. Note ventricle efface @ midline shifted



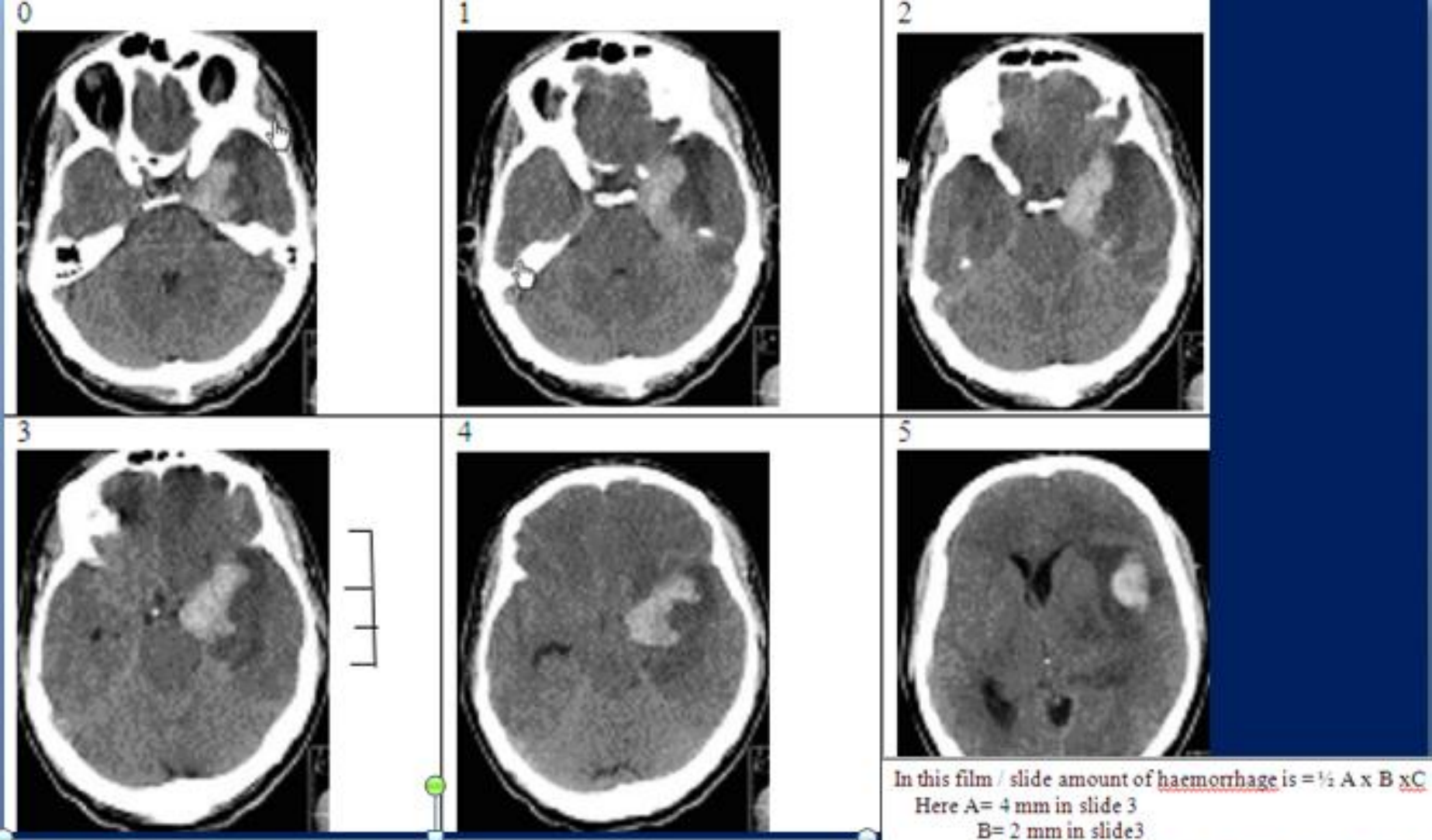


Intracerebral haemorrhage into a tumour. Note the different density or mix density (white arrow) and the surrounding hypo density black which represents oedema



Common site of haematoma in hypertensive patient Ganglio-capsular region

How will u calculate amount of blood in haematoma



To calculate blood in haematoma there is a equation

= ½ ABC

- here A= maximum length B= breath C = maximum height
- Value of A @ B measured in that slide where the haemorrhage is maximum
- For its measured there is scale in CT slide
- C == is count by number slide where haemorrhage present---1 or Counting slide "o" where heamorrhage begin and count up to where heamorrhage Present

In this film / slide amount of haemorrhage is = ½ A x B xC

Here A= 4 mm in slide 3

B= 2 mm in slide3

C= hemorrhage beginning slide is 0 and ending slide 5

= 5 mm

Amount of blood in haematoma : ½ A X B X C

: ½ 4 X 2 X 5

:20 ml

Subarachnoid

Intracerebral

Midline bleed (ruptured ACA aneurysm)

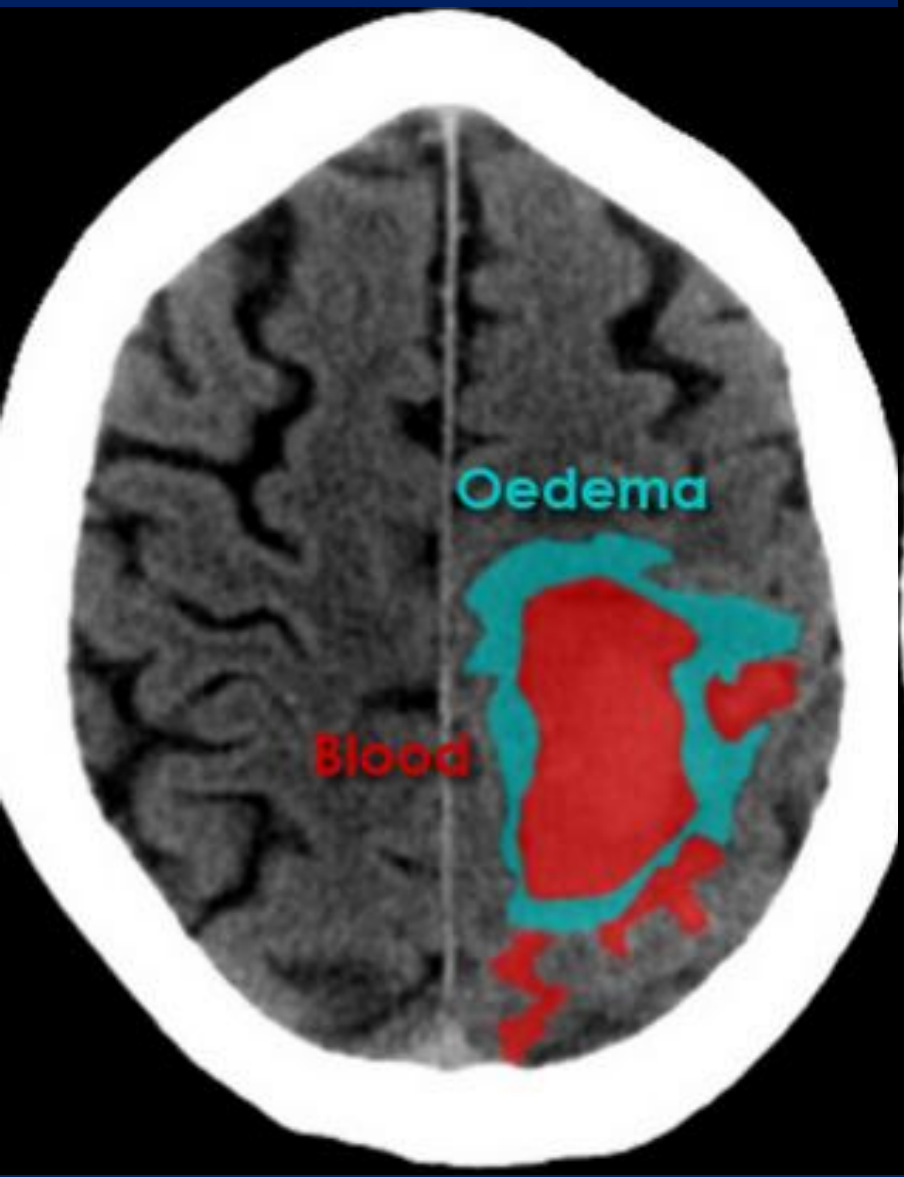
Bleeding around pons or midbrain

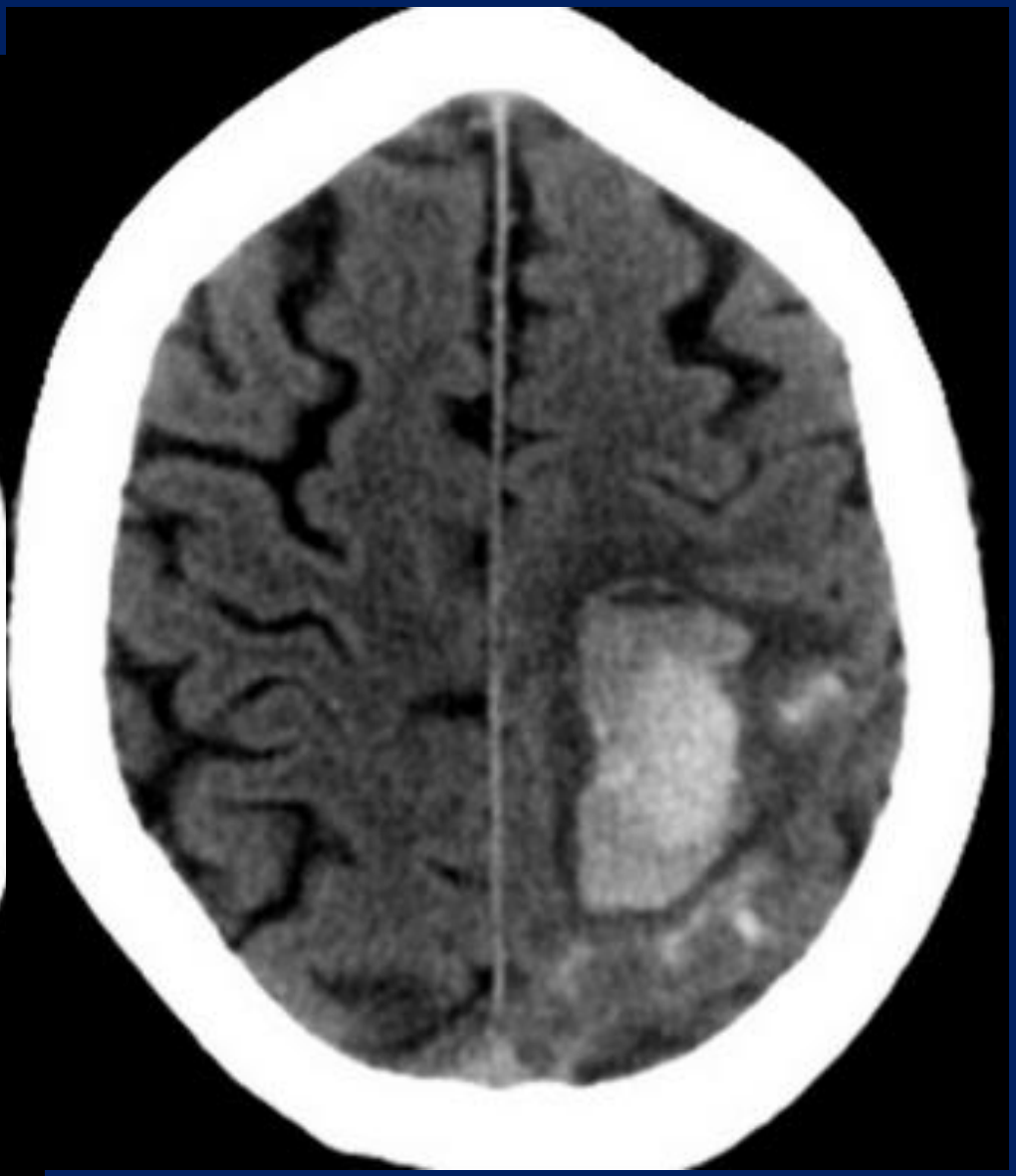
Hypertensive bleed

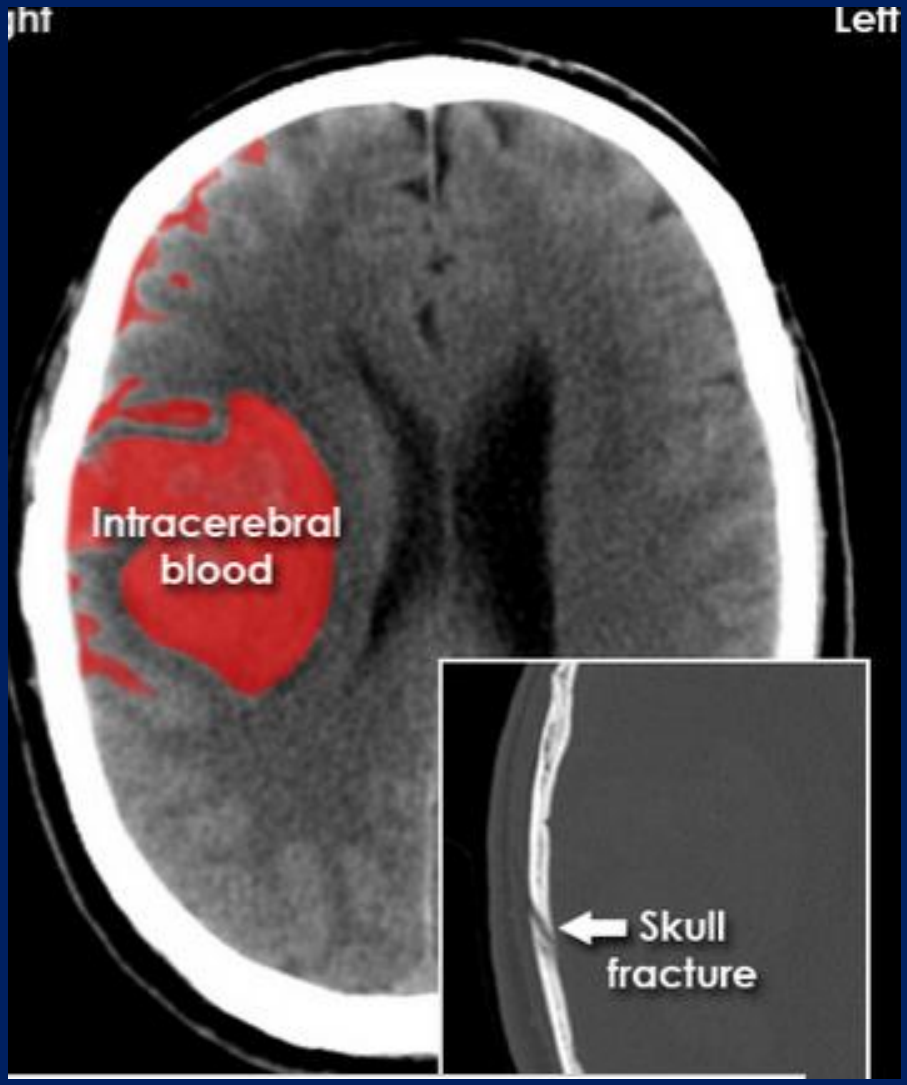
Amyloid bleed

Bleeding around pons or midbrain

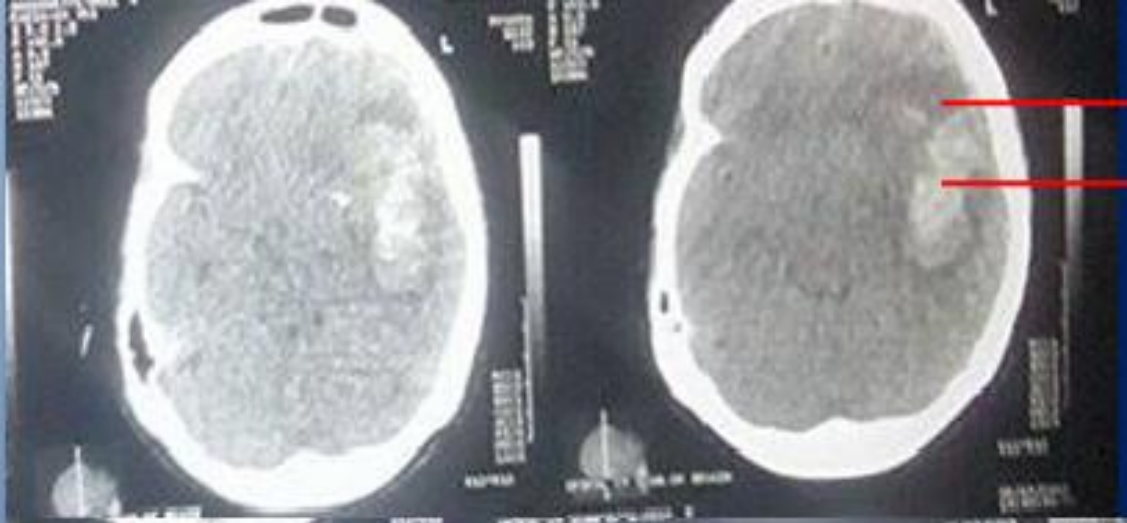
Hypertensive bleed


Oedema
Blood




ght
Left
Intracerebral blood
Skull fracture

Intra-cerebral hematoma with out Ventricular extension



Edema

Hematoma

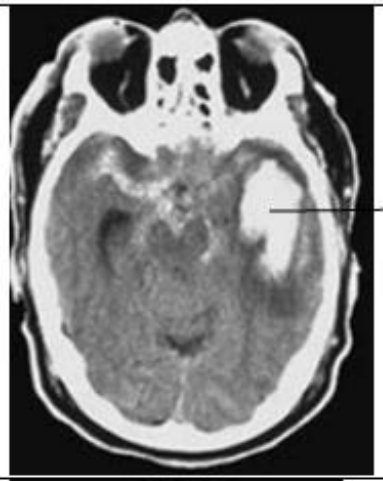
Ventricle Is efface (ventricle is not seen left)

Right ventricle normal

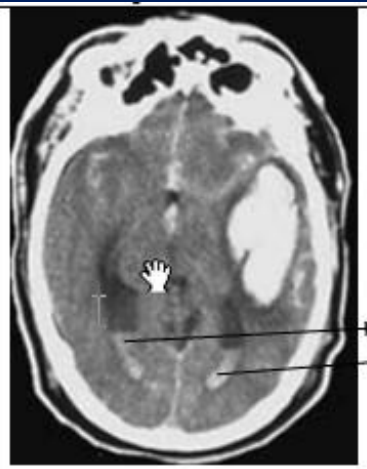
Haematoma (white)
Edema (surrounding black)

Left ventricle Compress (smaller than right)

Intra cerebra haematoma with ventricular extension



haematoma



Blood in lateral ventricle

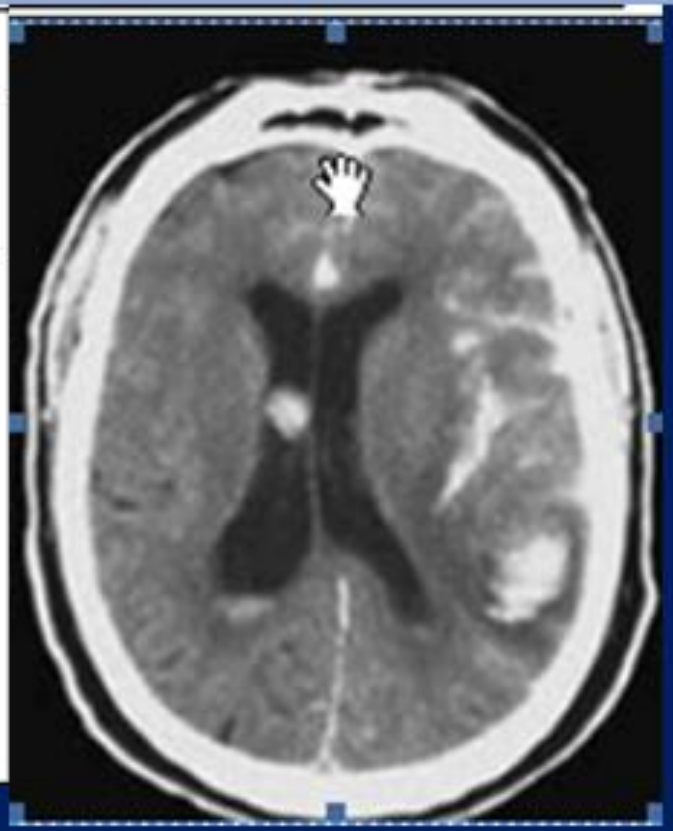
Blood in the 3rd ventricle

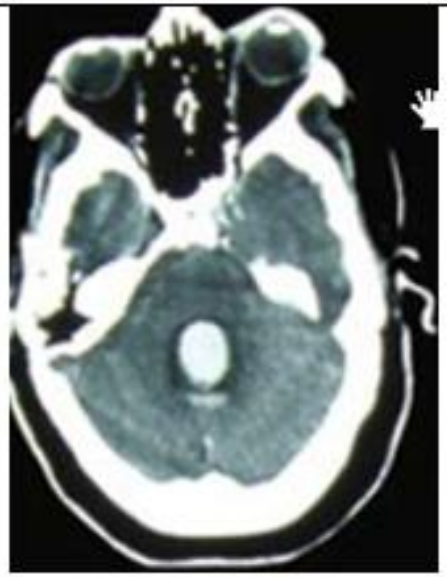
Blood in the 4th ventricle

How blood goes from parenchyma to ventricle ?
It goes via jet flow

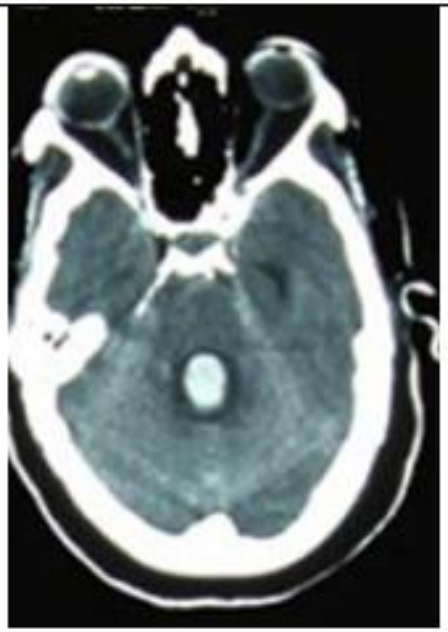
Blood in the 3rd ventricle

Blood in the 4th ventricle

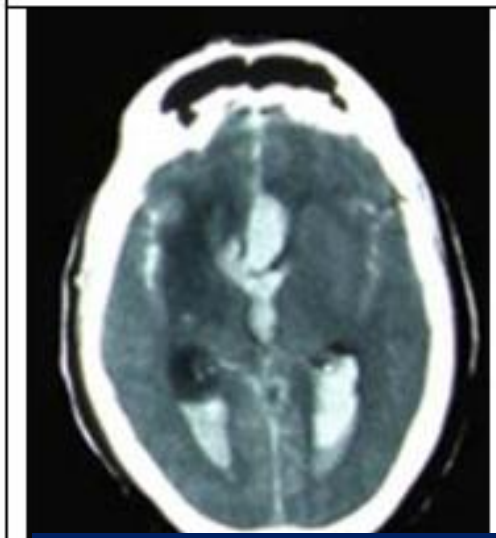


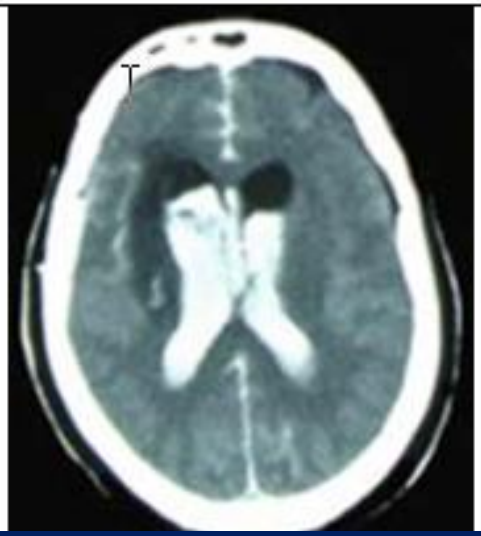


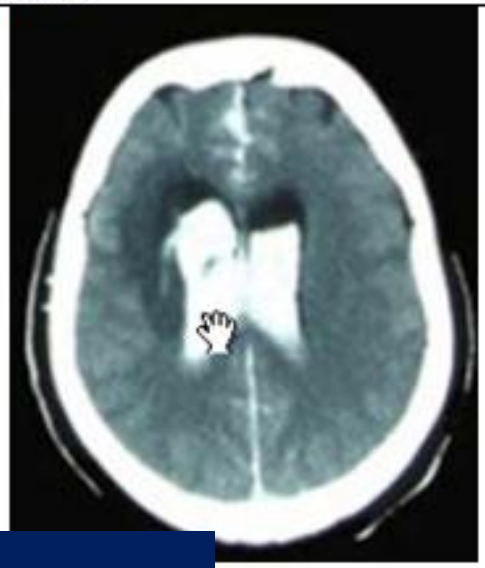
Blood in 4th ventricle
(white circle)



Blood (white) in inter hemisphere space and occipital horn of lateral ventricle







Primary subarachnoid hemorrhage

Blood is only in the ventricle or subarachnoid space or both but not in brain parenchyma :

Intraventricular haemorrhage

Aneurysm

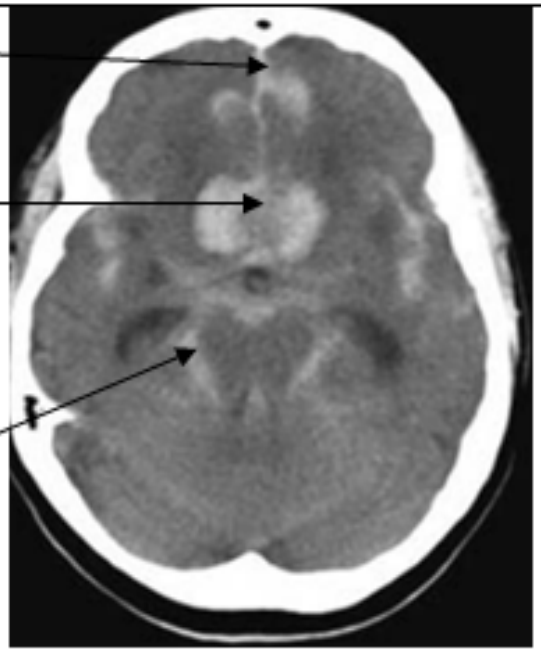
Int. hemispheric fissure

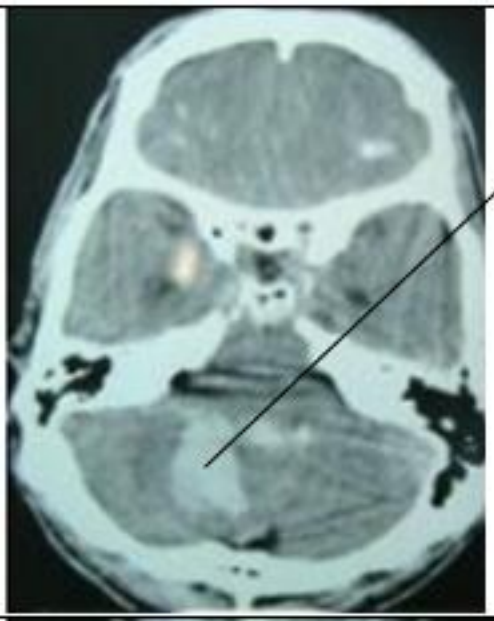
Ant. Com. Artery

Supra cellar cistern

Int. peduncular cistern

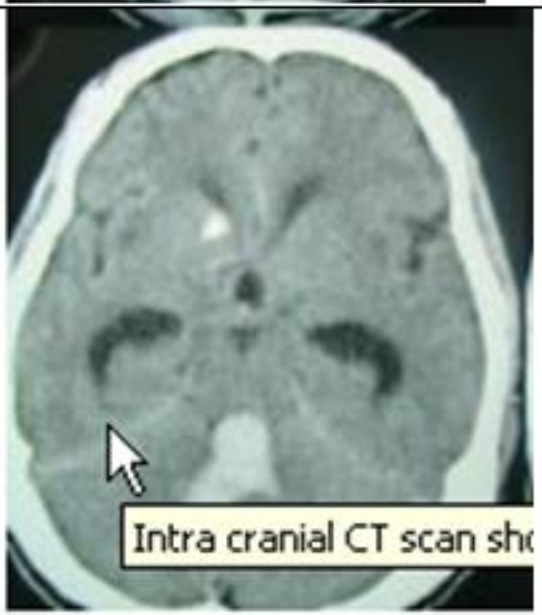
4th ventricle



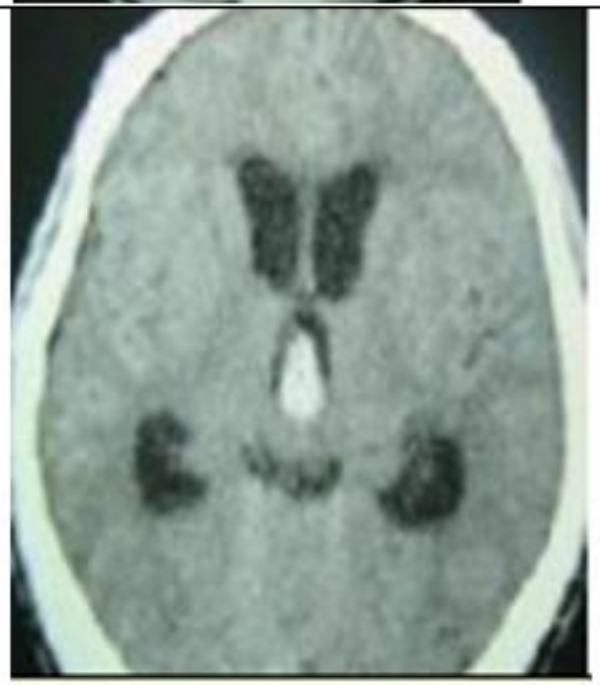


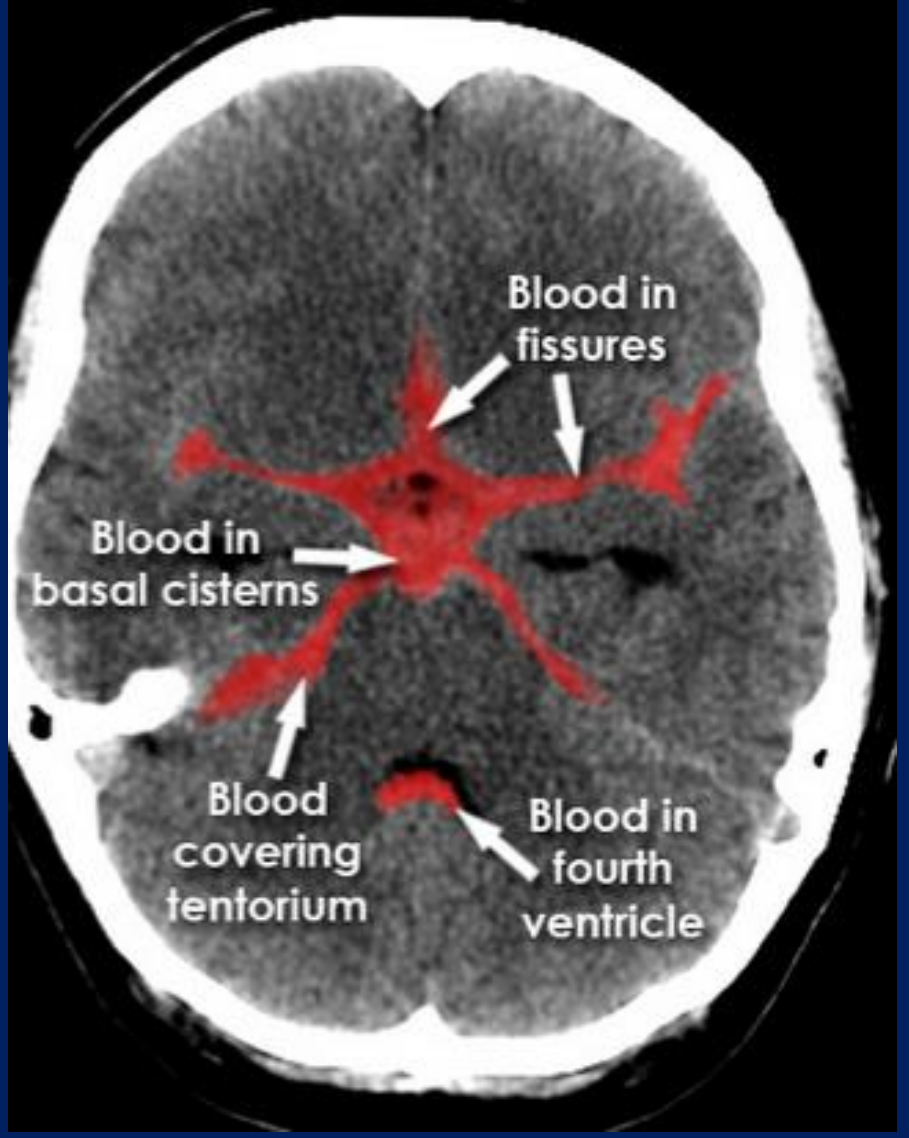
Haemorrahge in cerebellum in both film

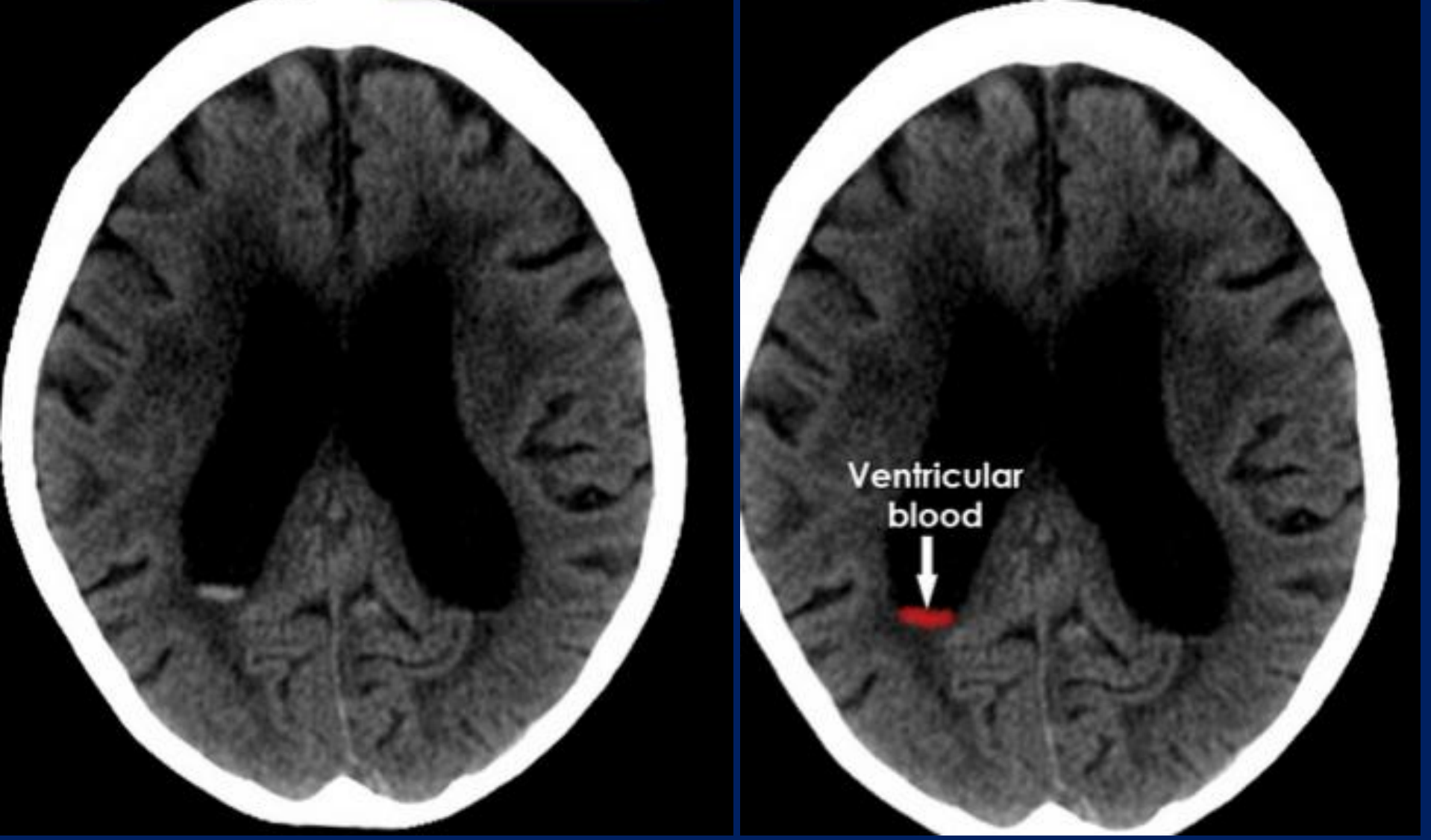
Haemorraghe in the cerebellum and 4th guide ventricle



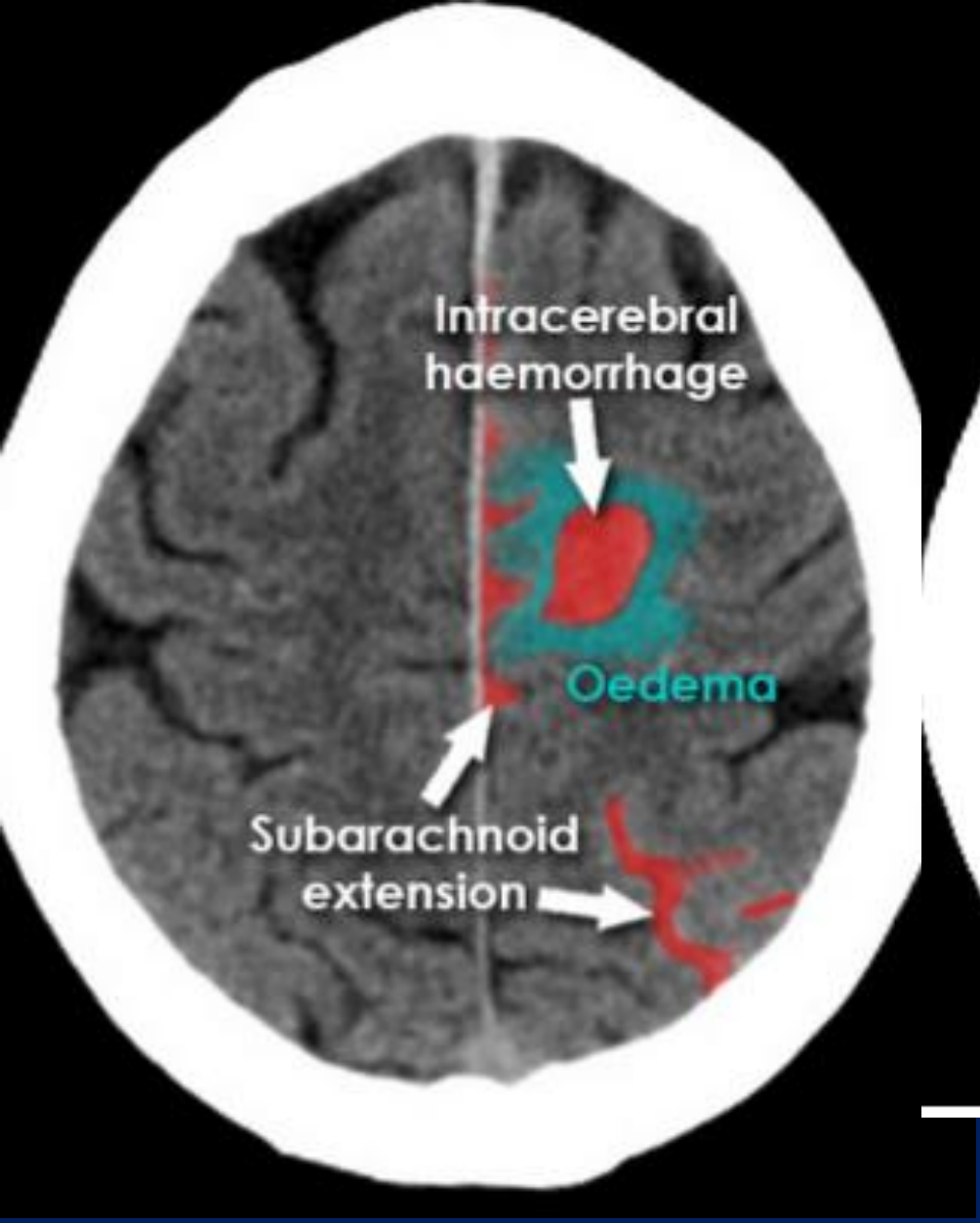
With dilatation of 3rd @ frontal horne of latera veventricle and also blood in 3rd ventricle .

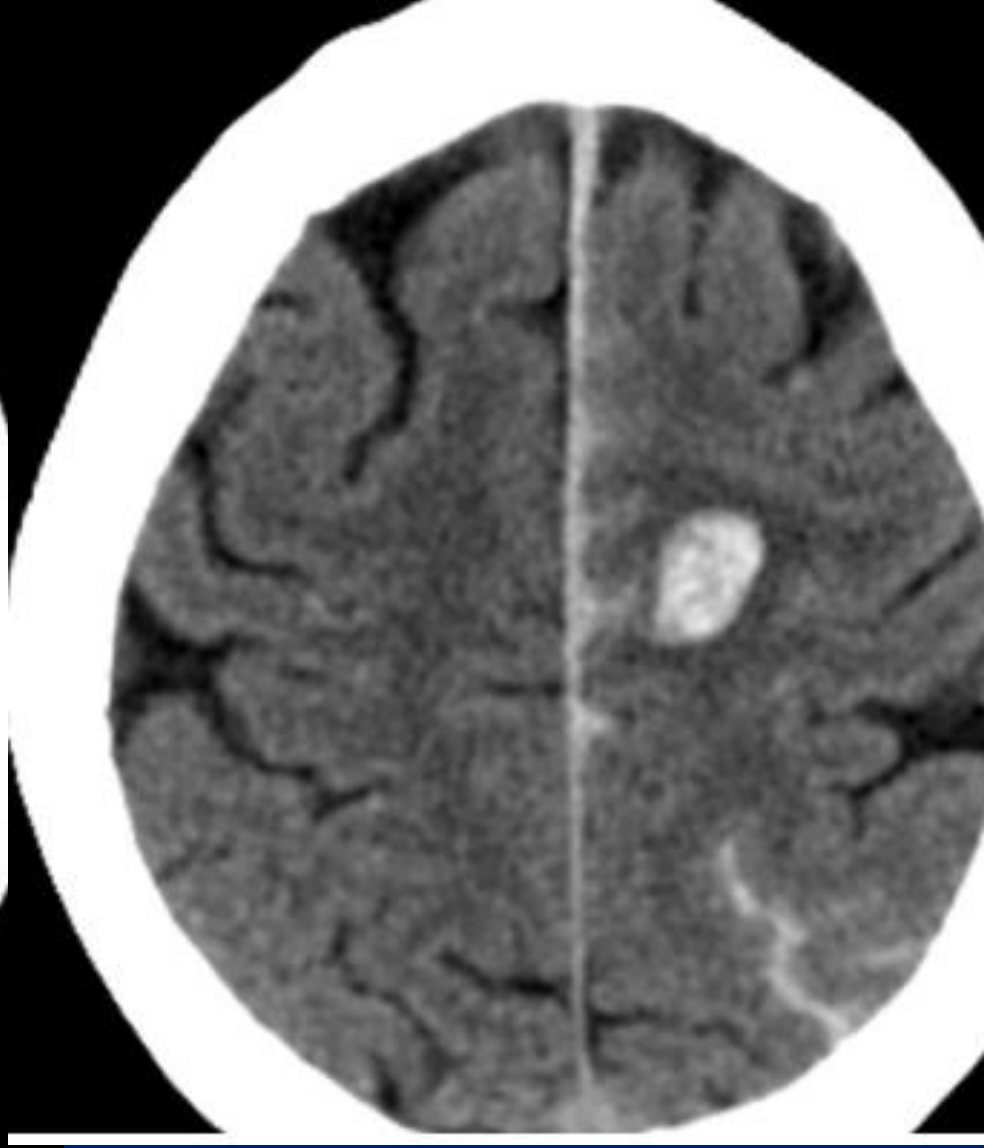


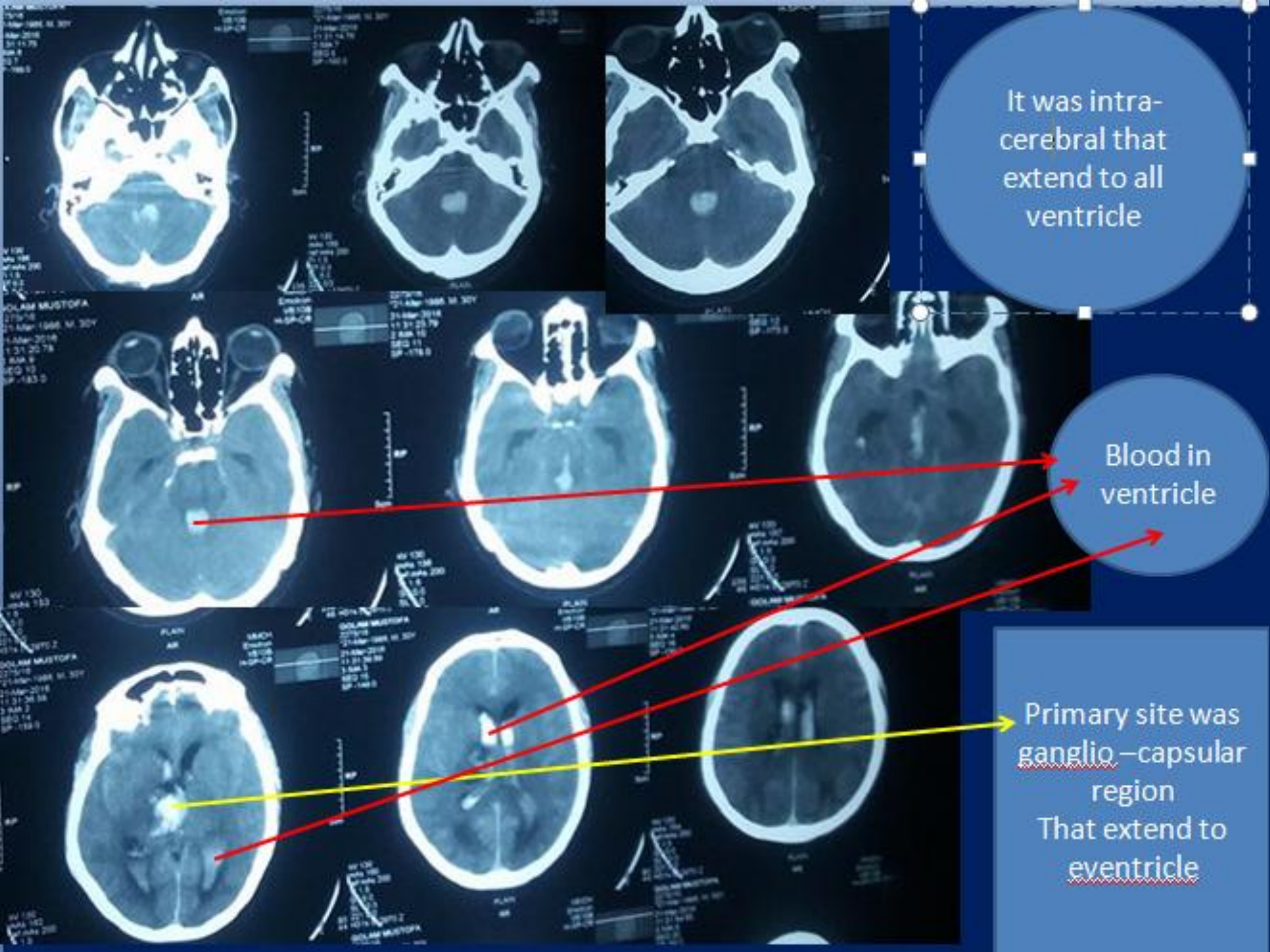

Blood in fissures
Blood in basal cisterns
Blood covering tentorium
Blood in fourth ventricle


Ventricular
blood


Normal sulcus
Sulcal blood


Intracerebral
haemorrhage
Oedema
Subarachnoid
extension




It was intra-cerebral that extend to all ventricle
Blood in ventricle
Primary site was ganglio –capsular region
That extend to eventricle

Sub-arachnoid haemorrhage
Due rupture aneurysm

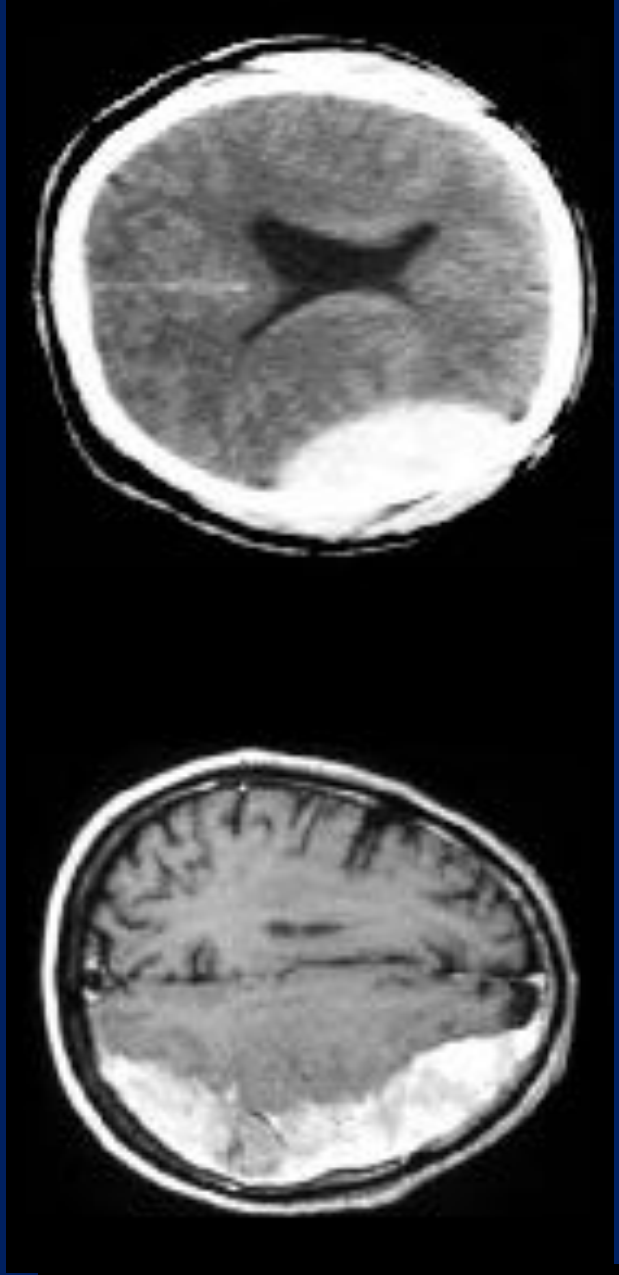
Aneurysm rupture

Dilated ventricle (hydrochephalus)

Dilated 3rd ventricle

Blood in Sylvain sulcus

Sub-dural heamatoma
Extra-dural heamatoma



Epidural hematomas are usually caused by laceration of the middle meningeal artery. These hemorrhages obey suture lines and have a lens shape.

Subdural hematomas are usually caused by laceration of bridging veins. These hemorrhages do not obey suture lines and look wavy against the brain surface.

HEMORRHAGE OUT SIDE THE BRAIN SUBSTANCE

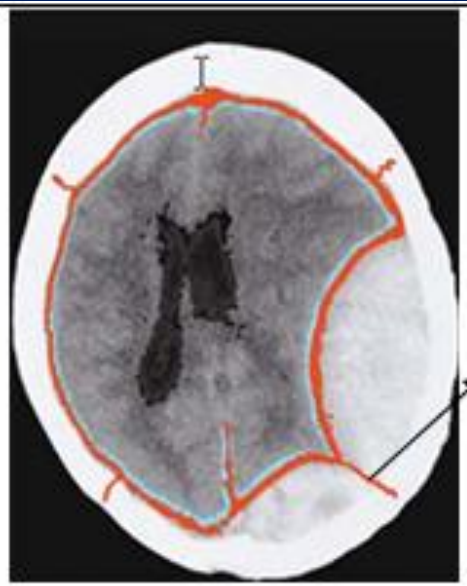
Two type

- **Extra dural haematoma** (out side the dura matter)
- **Sub dural haematoma** **(**below the dura or in between dura and arachnoid matter)

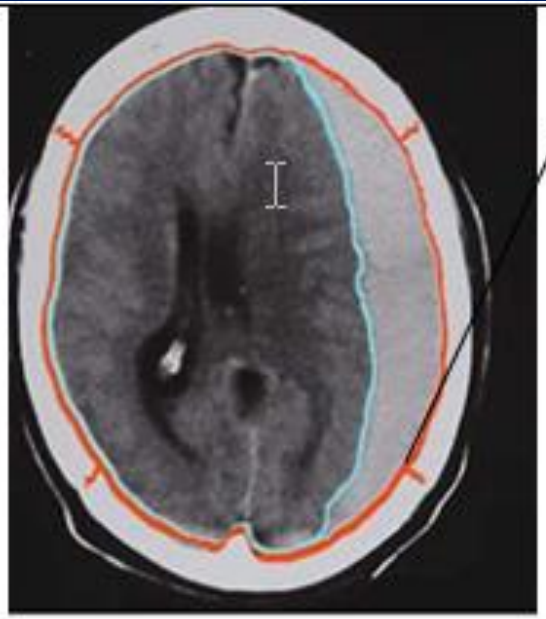
Extra dural or epi dural ----Biconvex ---To remember X in extra- stand for X in **convex**

Sub dural ----is crescentic or concavo-convex

Extradural haematoma	**Subdural** haematoma
These arise between the inner table of the skull and the dura.	These arise between the dura and arachnoid
They usually arise from injury to the middle meningeal artery or its branch	Arise From ruptured veins
Arterial blood	Venous blood
Biconvex shape	A crescentic appearance
The haematoma is confined, with a well defined margin	The haematoma is more widely spread and a m irregular inner margin.



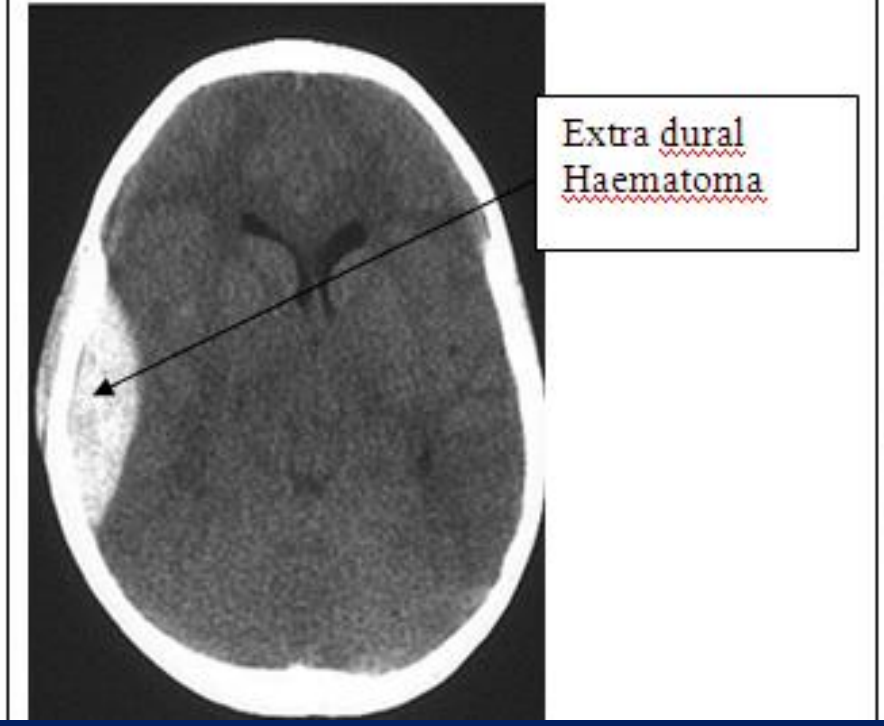
Extra dural haematoma does not cross the suture line

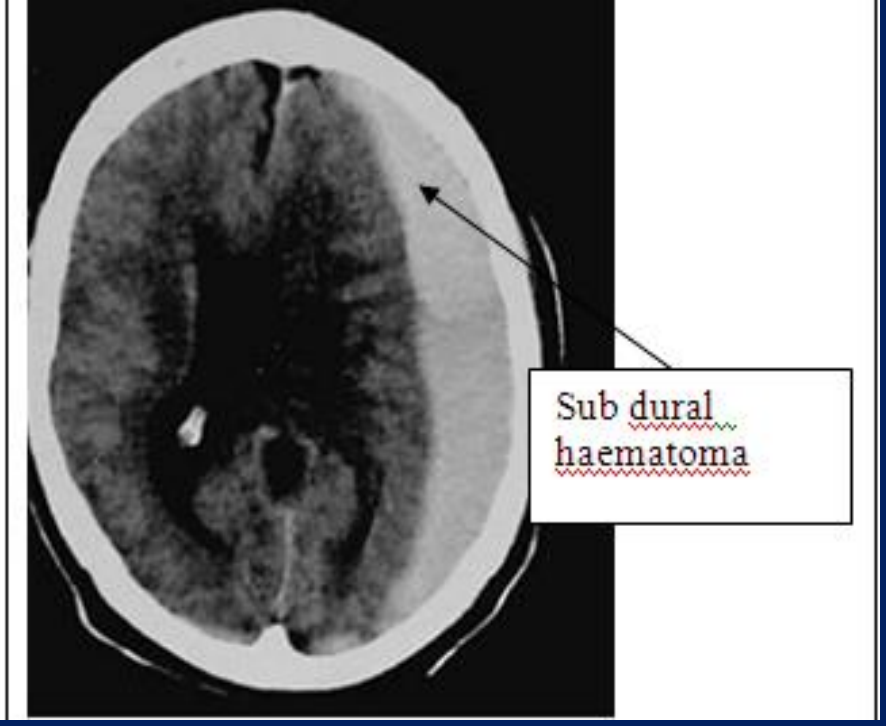


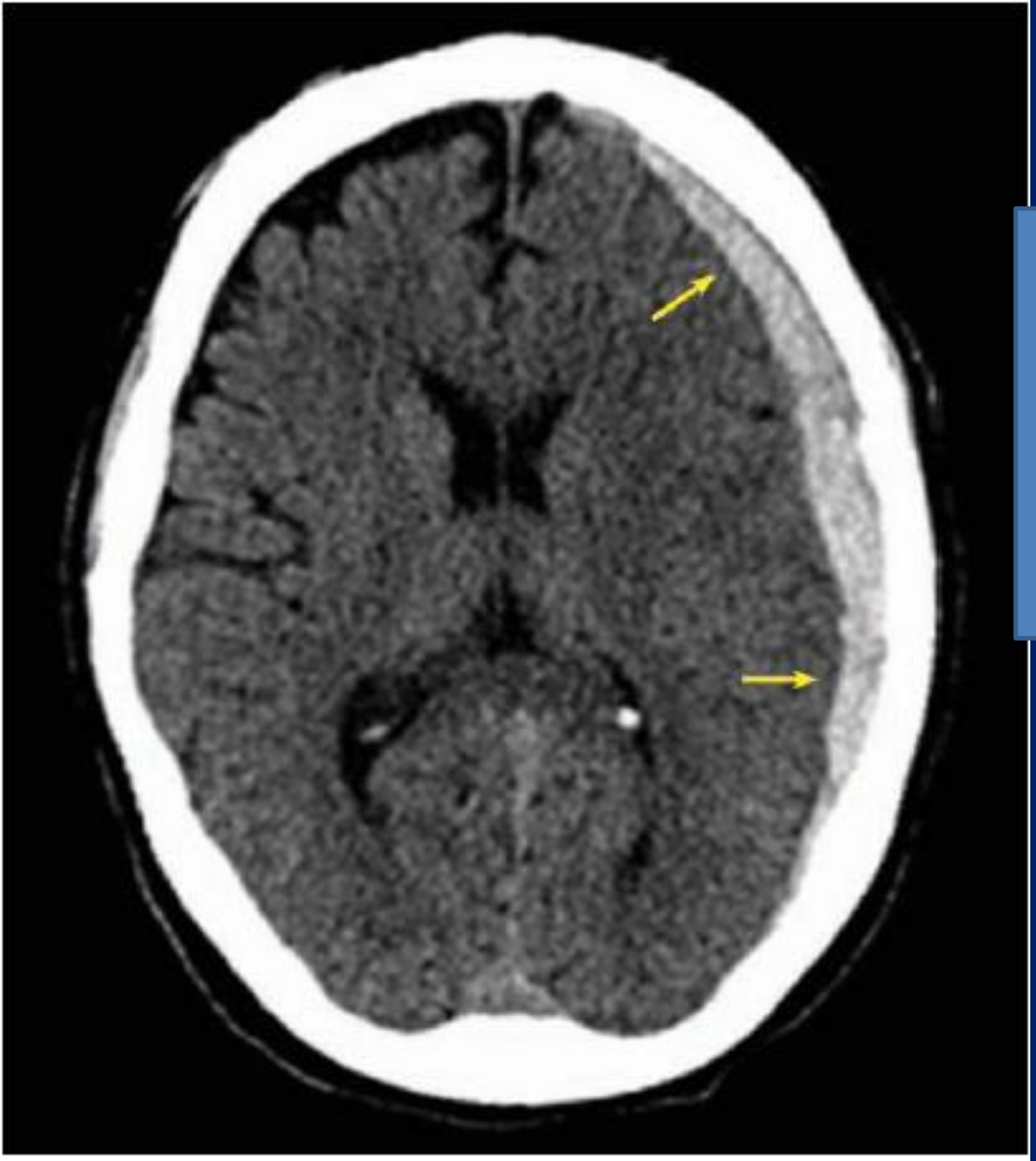
It crosses the suture line

A Clue to diagnosis if u do not find ventricle or find ventricular effacement in one side or if ventricle are unequal then

1. 1st look for ICSOL or intracerebral haematoma or massive infarction of that side
2. If not found these then look at periphery for
   - Sub dural haematoma
   - Extradural haematoma


Extra dural
Haematoma


Sub dural
haematoma



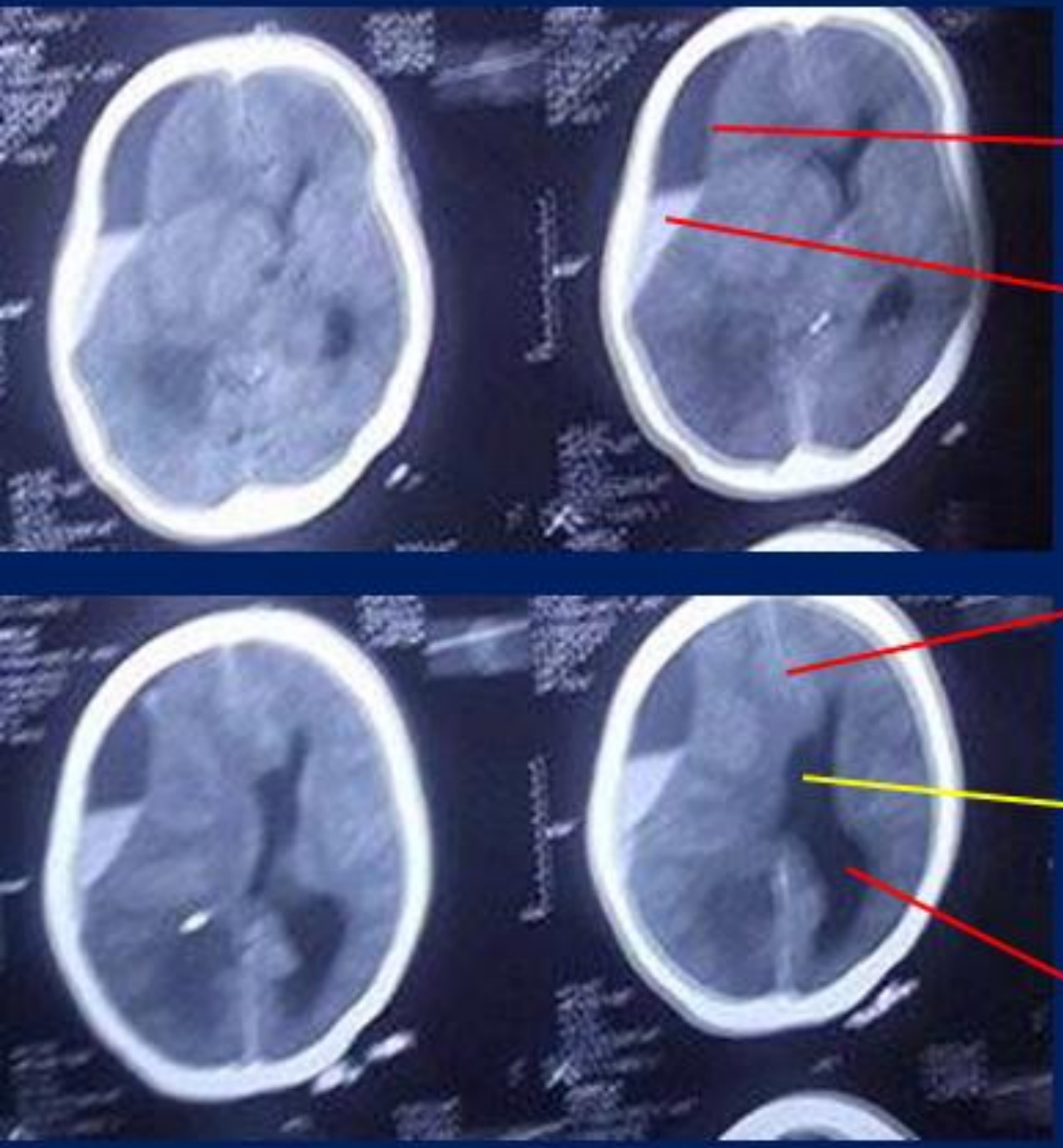
Acute subdural haemtoma

Changing of color of haematoma with time

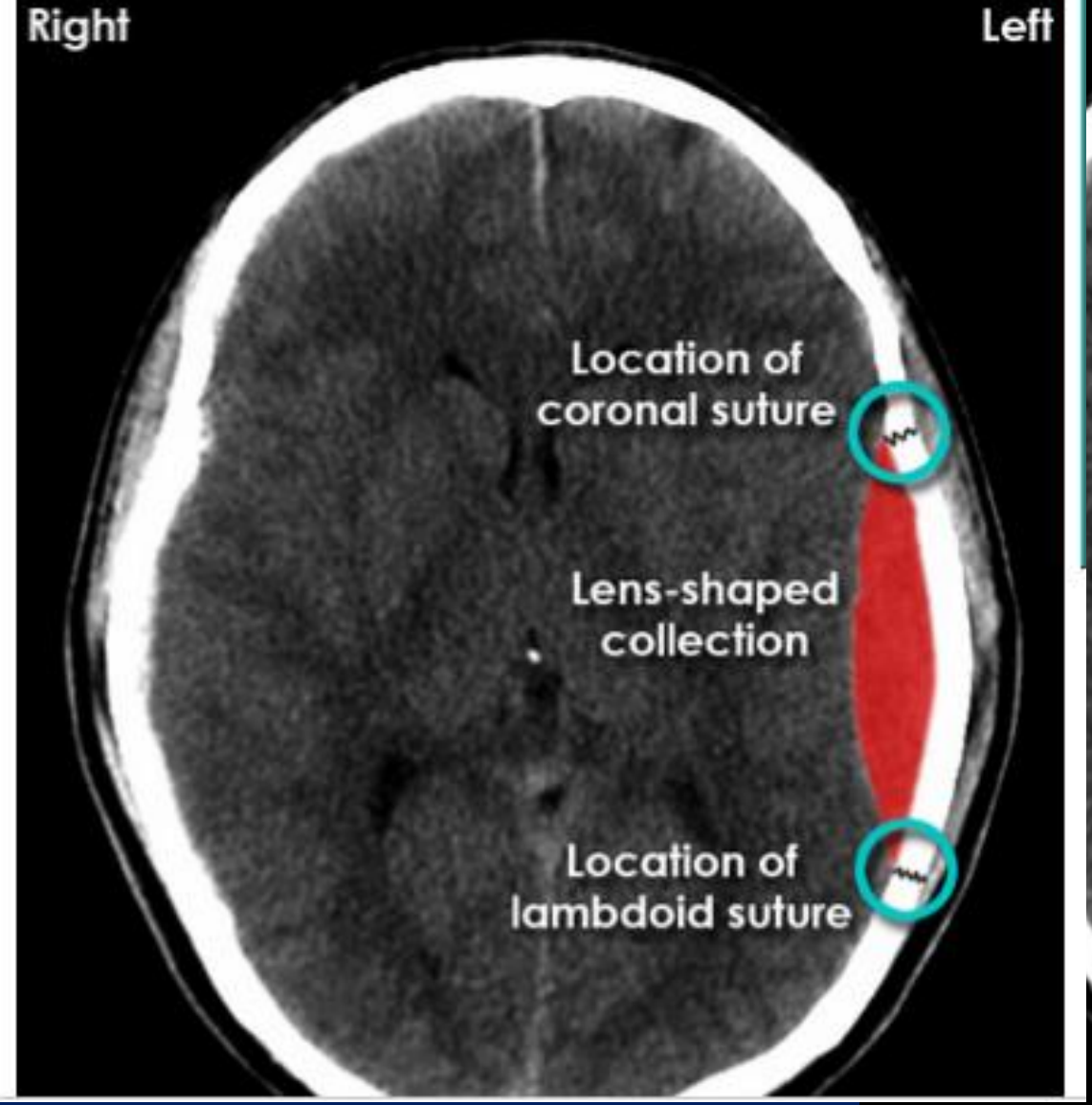
		
Left sided acute subdural haematoma (white)	Right sided sub acute sub dural haematoma (mixed density –cannot differentiate from brain parenchyma . only clue is absent of ventricle / ventricular effacement on Right side	Right sided Chronic subdural haematoma (black)
acute (hyperdense)	Sub acute (isodense)	hypo-dense chronic subdural

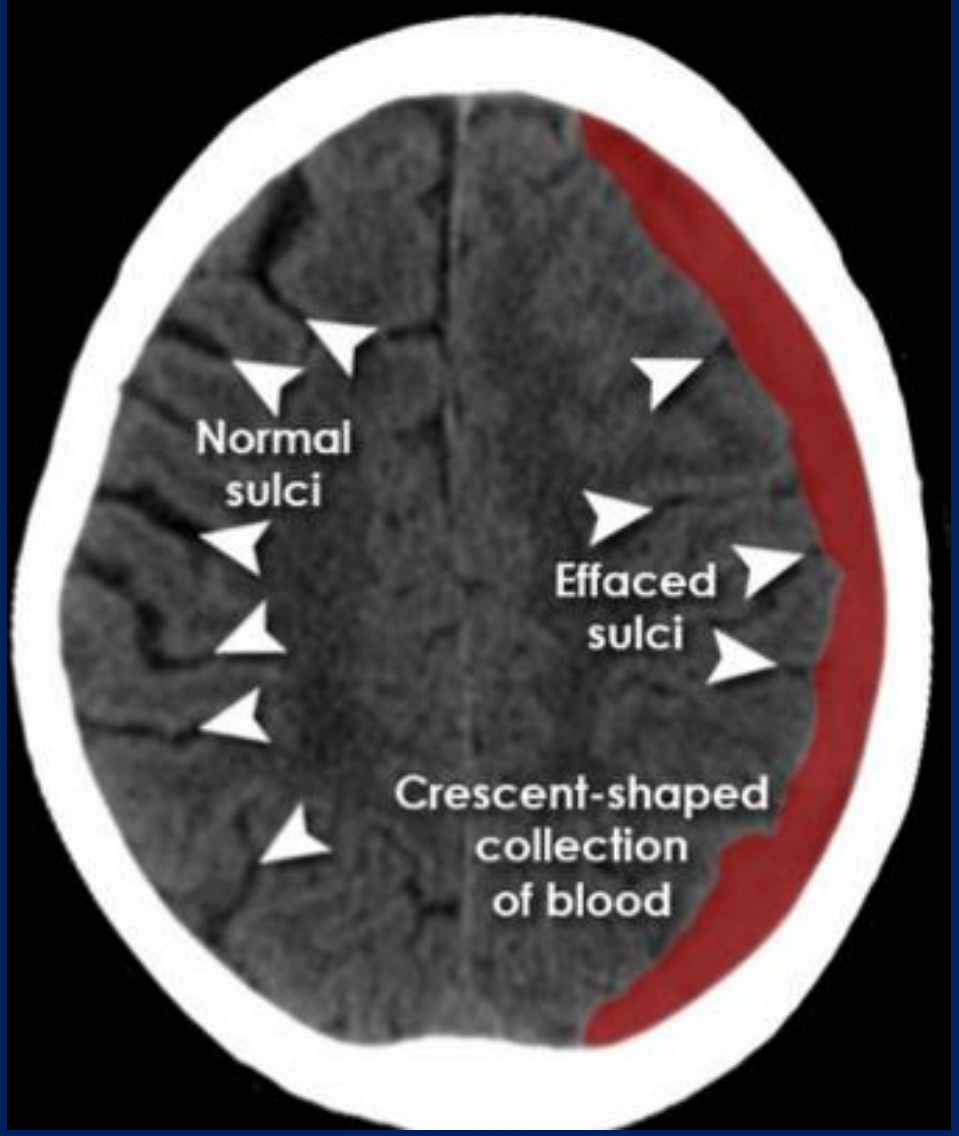
Chronic subdural Hematoma

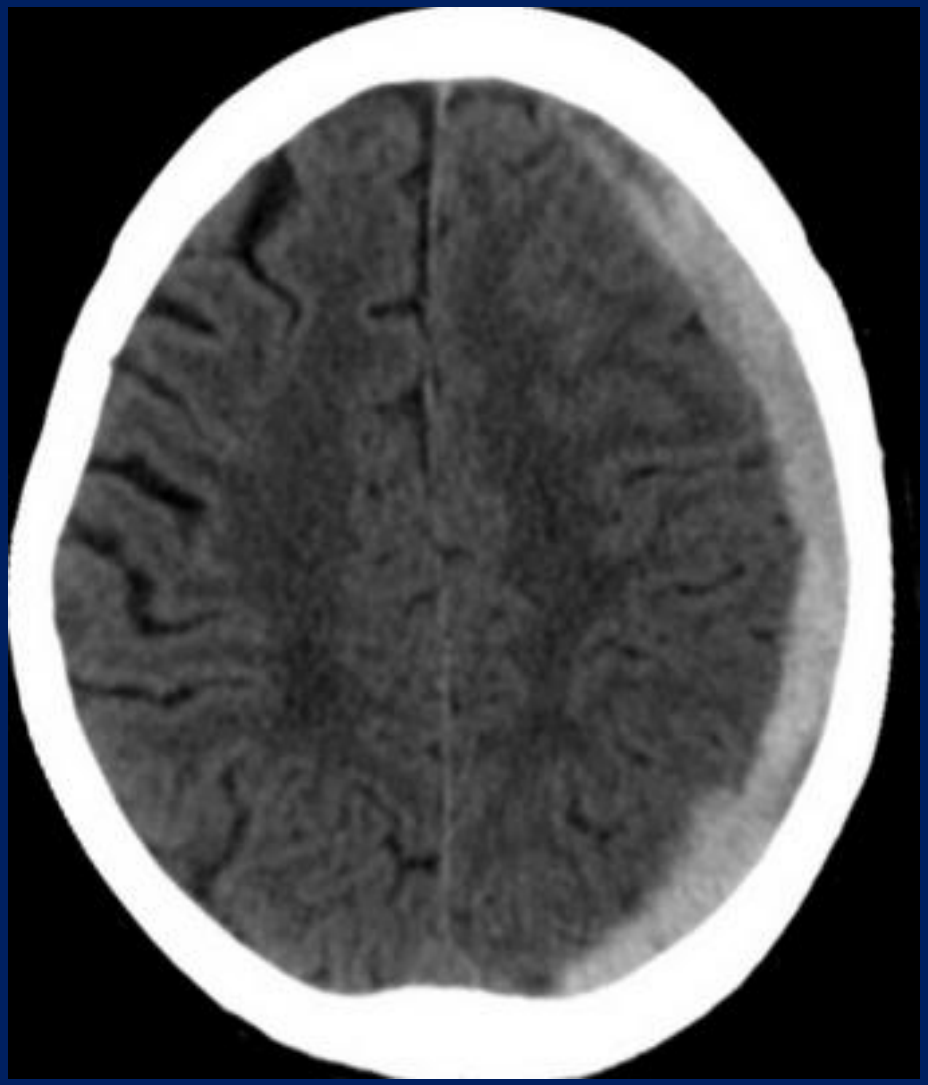
Ventricular effacement

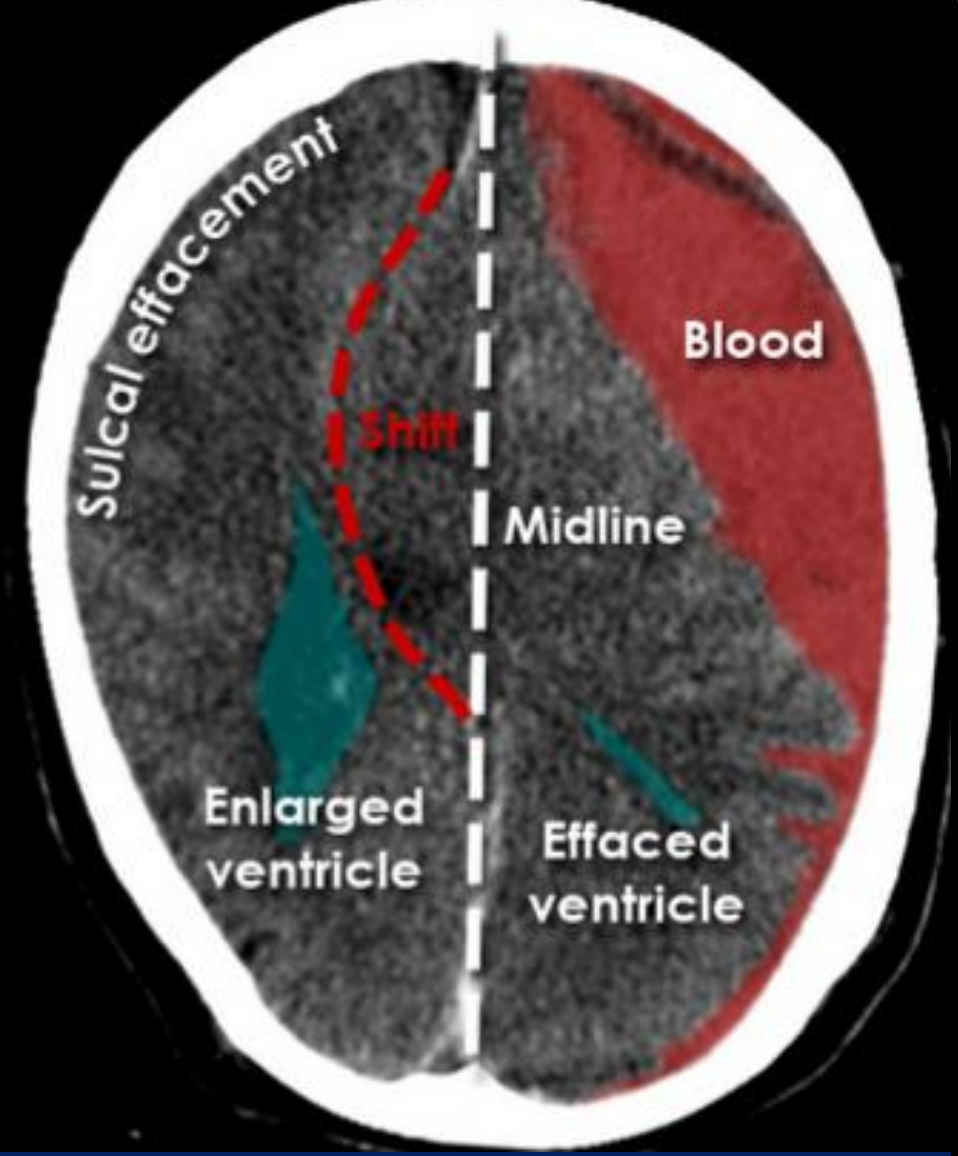


Acute on chronic subdural haematoma with
Midline shifting with ventricular effacement


Right
Left
Location of coronal suture
Lens-shaped collection
Location of lambdoid suture


Normal
sulci
Effaced
sulci
Crescent-shaped
collection
of blood




Sulcal effacement
Shift
Blood
Midline
Enlarged ventricle
Effaced ventricle

Ring enhancing shadow

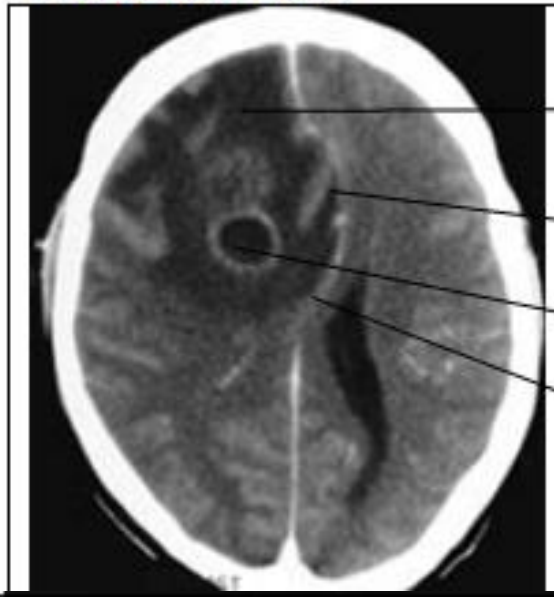
1.Brain abscess

2 secondaries

3.tuberculoma

BRAIN ABSCESS

BRAIN ABSCESS



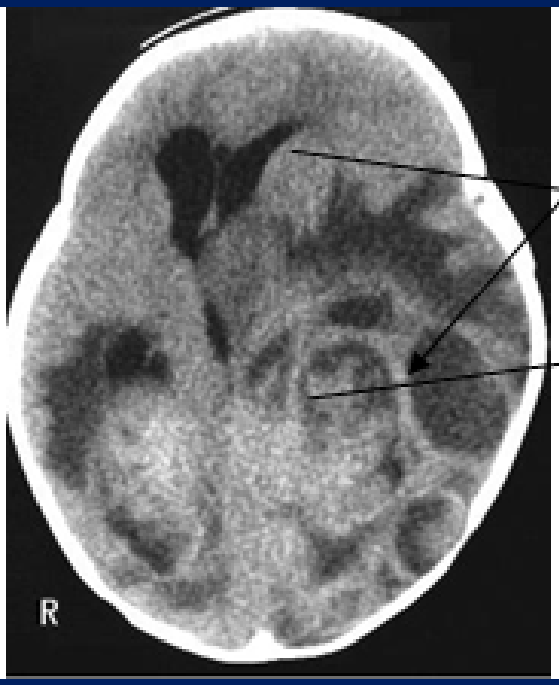
Edema

Midline shifting

Abscess with rim enhancement

Effacement right ventricle

Contrast CT
Showing
Rim enhancement lesion .
Due to brain abscess

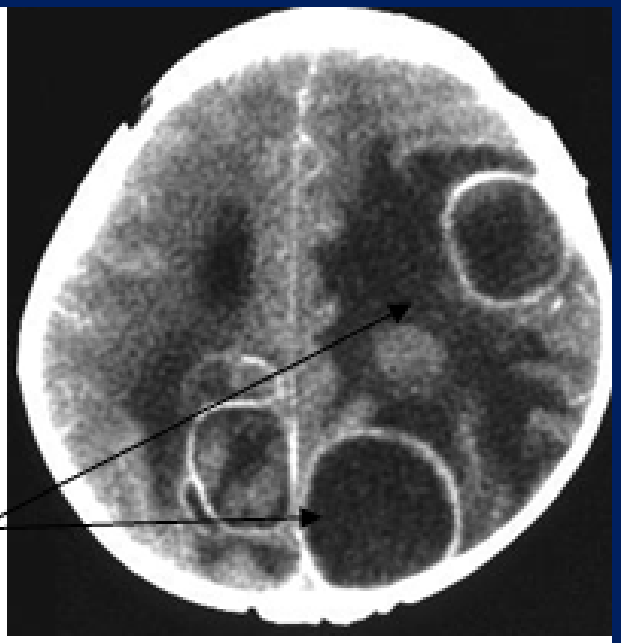


Non contrast CT
Mixed density

Effacement of ventricle

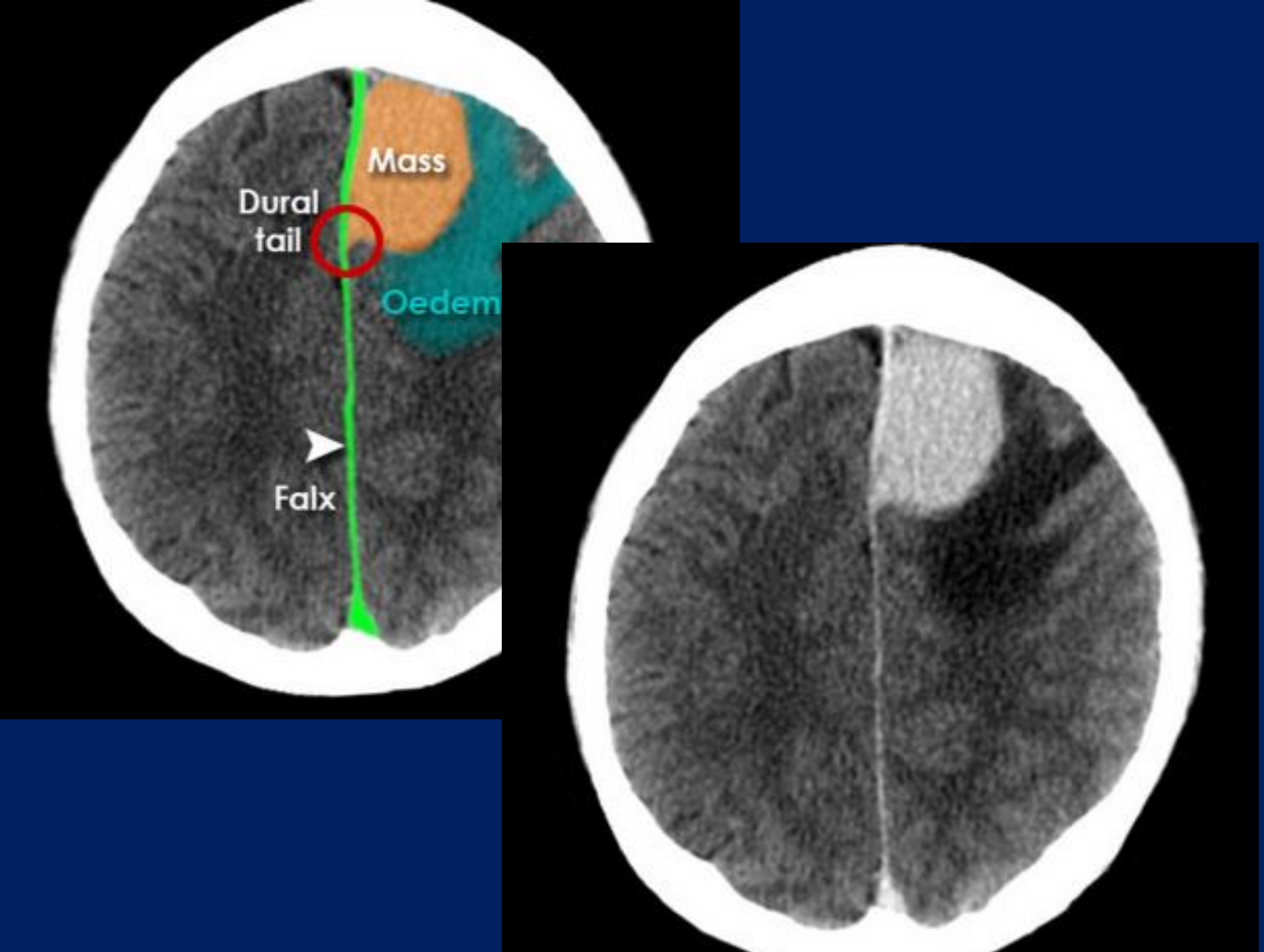
Midline shifting

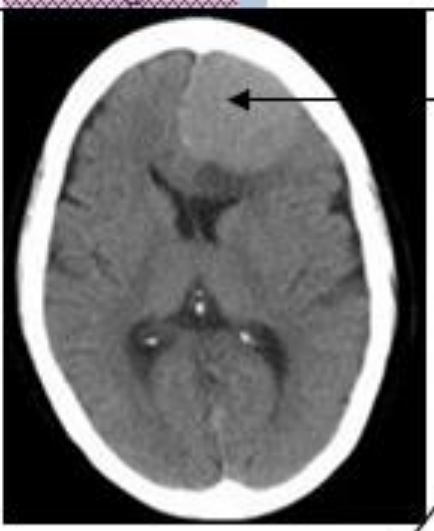
Contrast CT scan shows
Multiple ring
enhancement with
peri lesional edema



Cerebral metastases - CT brain
Multiple lesions were seen on both sides of the brain in this patient who had a known diagnosis of lung cancer
The post-contrast image (roll over image) shows ring enhancement of the lesions

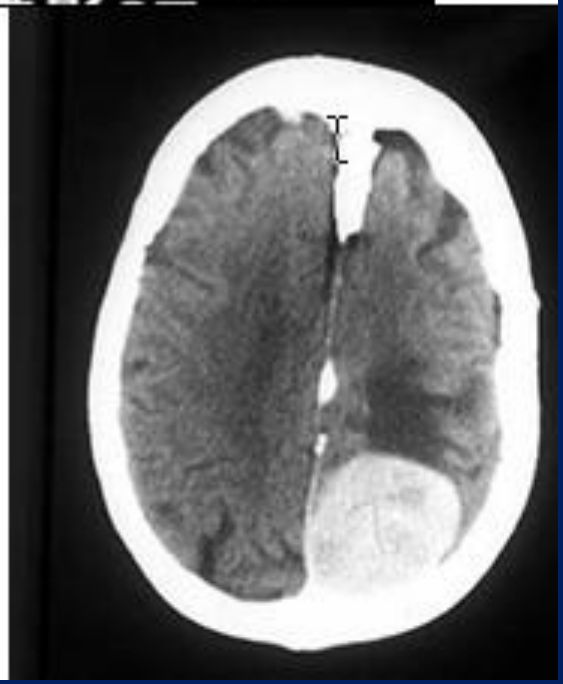
Meningioma

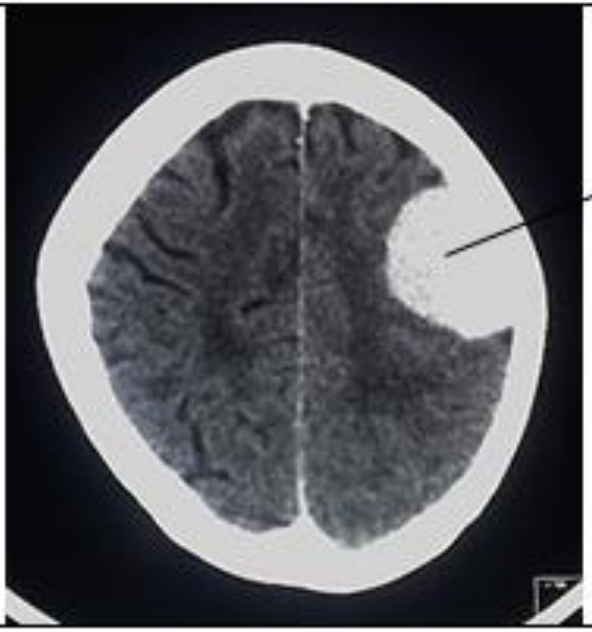

Mass
Dural tail
Oedem
Falx



Non contrast CT showing circumscribed mixed density mass lesion with ventricular effacement and midline shifting

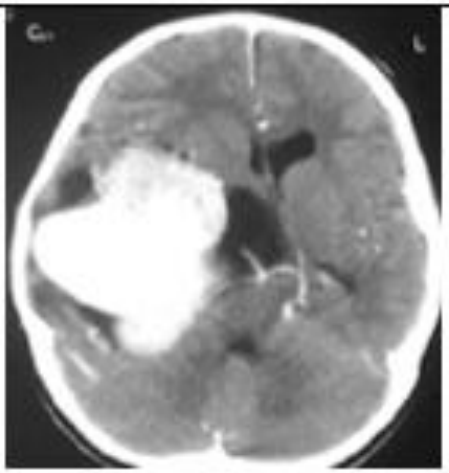
Bright enhancement after contrast

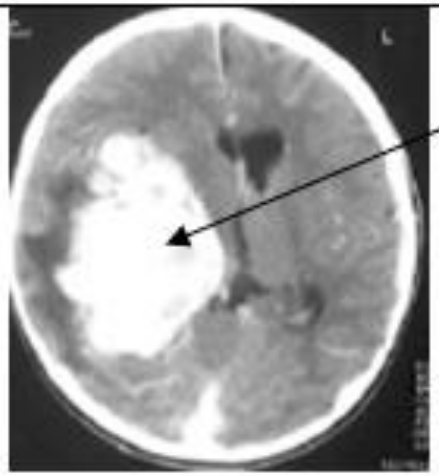




Brilliantly bright lesion after contrast. meningioma is usually arise from meningense it lie along the dural attach

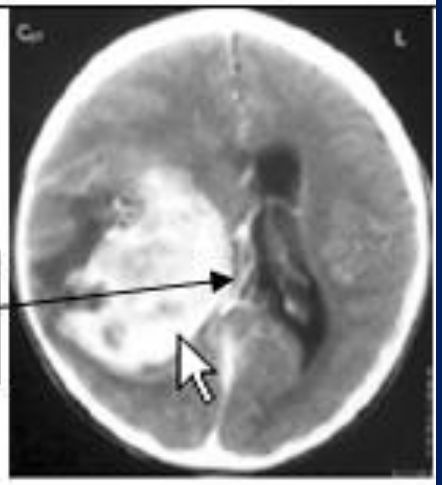
Cystic meningioma With midline shifting Ventricular effacement



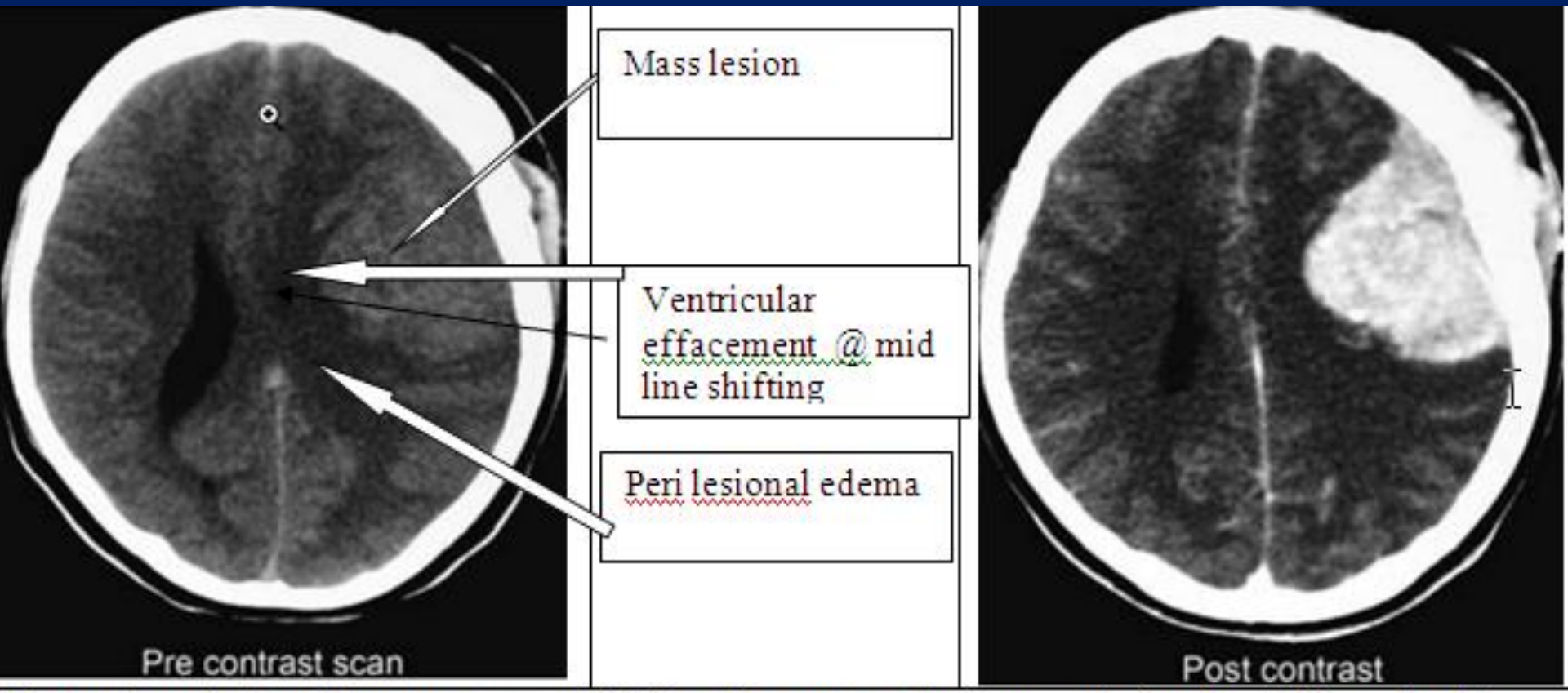


Meningioma

Rt. Lat. Ventricle is compressecd

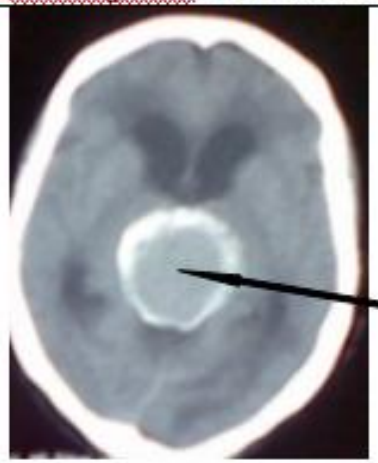


Contrast CT –scan showing Meningioma -



Meningioma 1st is with out contrast and 2nd is with contrast . in contrast is clearly visible and as it is

Meningioma 1st is with out contrast and 2nd is with contrast , in contrast is clearly visible and as it is

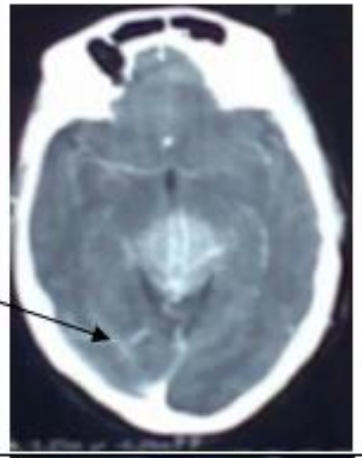


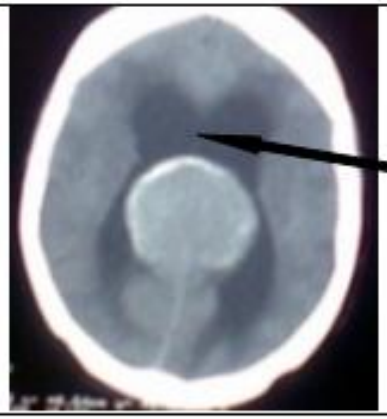
Left Non contrast CT scan showing meningioma

Mixed density and well circumscribed

Right contrast CT Scan showing meningioma .

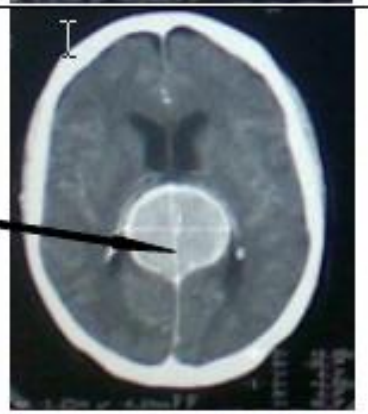
This film is contrast because we can see the vessel here which is look like white line

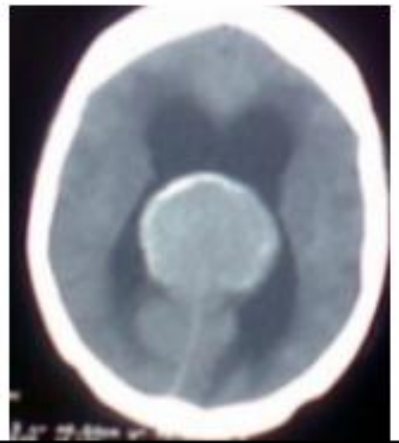


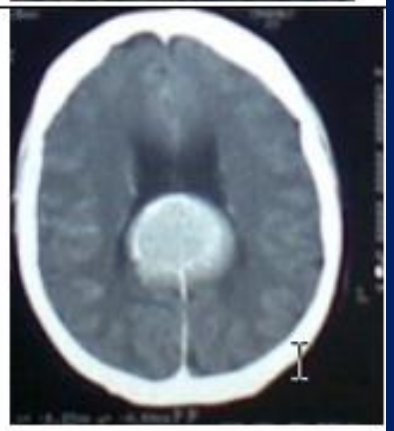


Hydrocephalus , enlargement of lat. Ventricle due to obstruction of at the level of 3rd ventricle

Brilliantly enhancement in contrast goes favor of meningioma

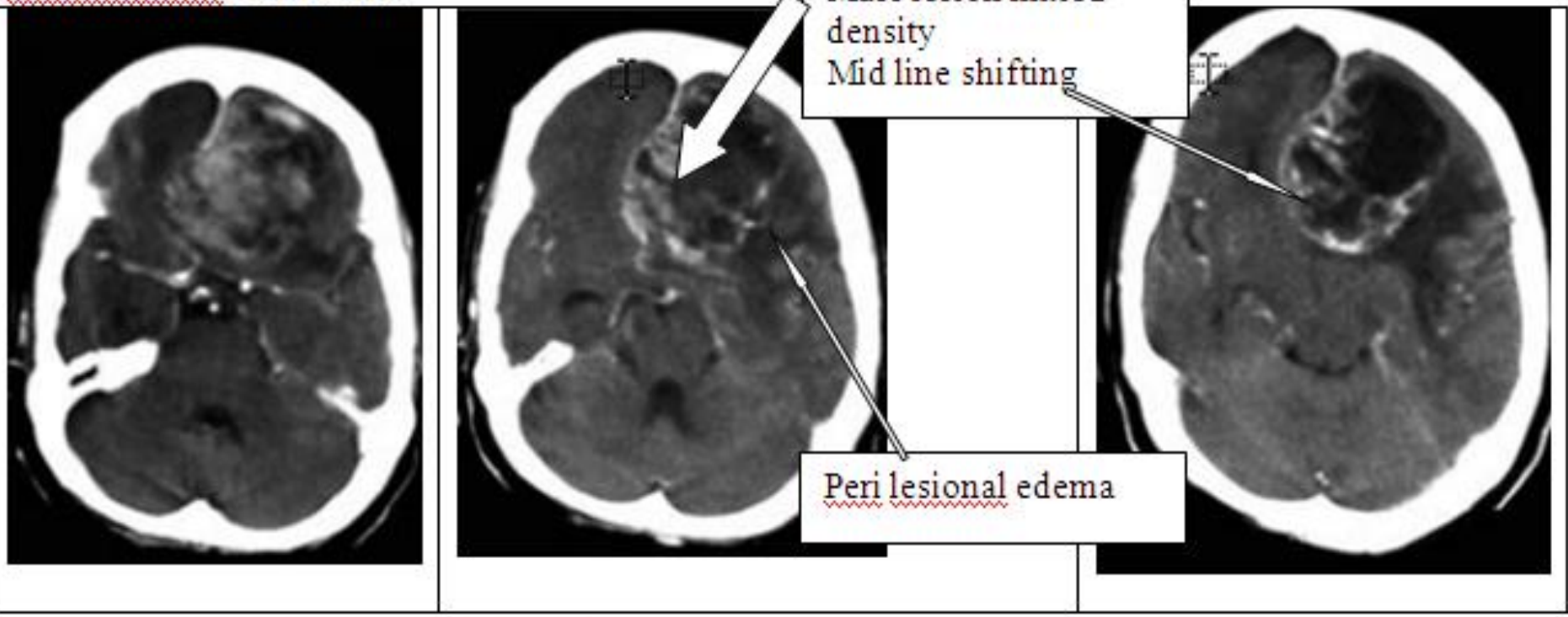




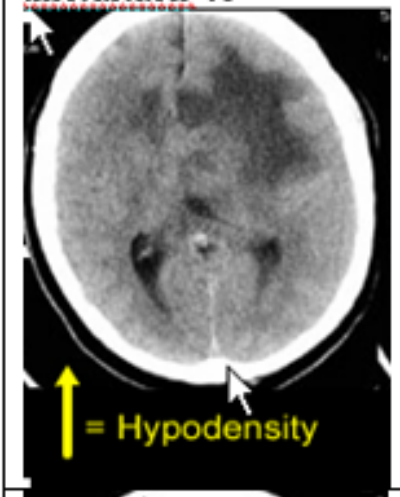
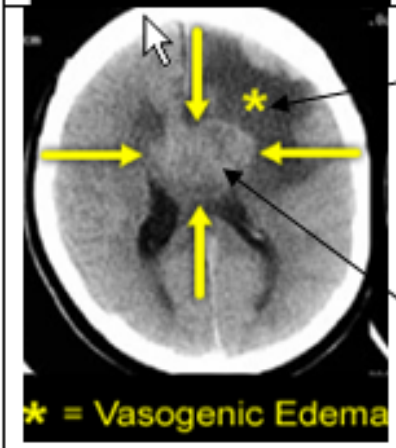
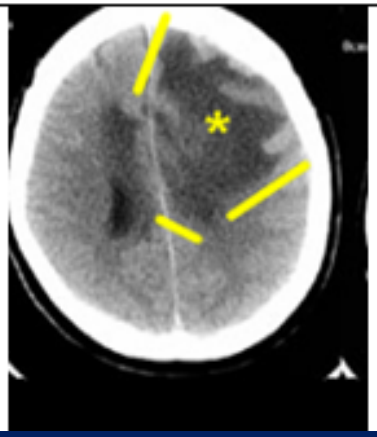
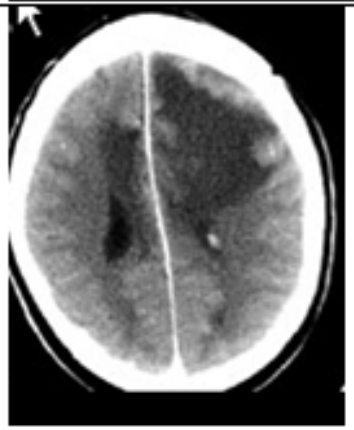


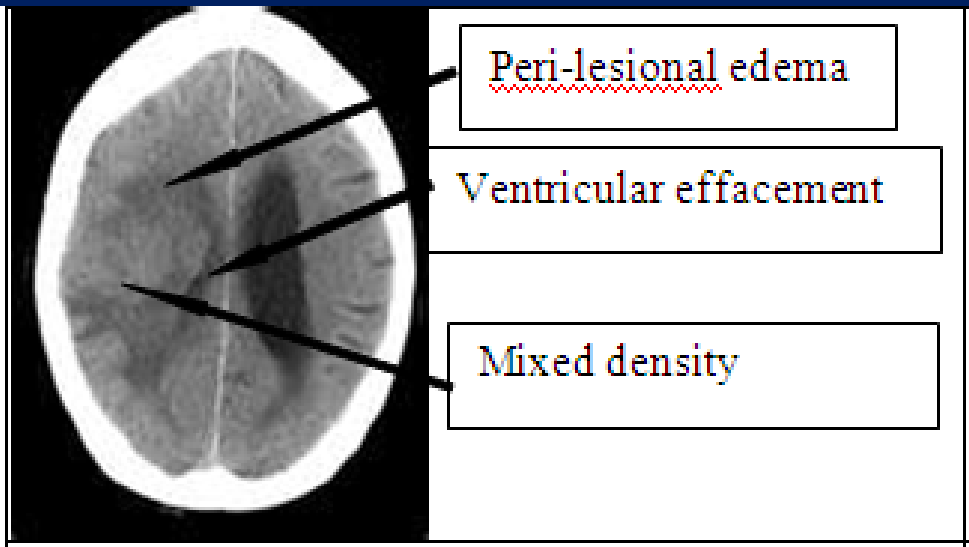
Glioma

Glioblastoma / GLIOMA

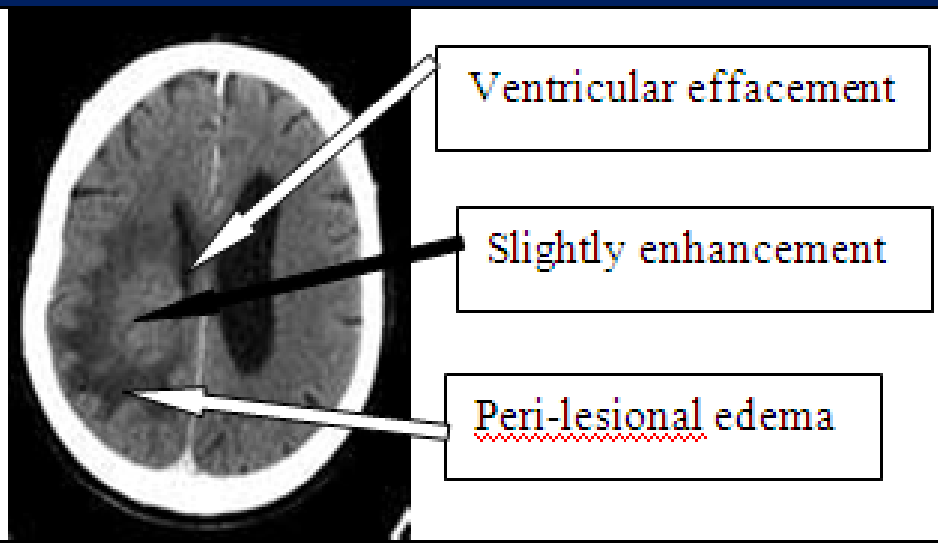


Contrast CT scan showing a left frontal irregularly enhancing tumour with solid and cystic components. This is a typical appearance fora high-grade glioma usually **glioblastoma multiforme**

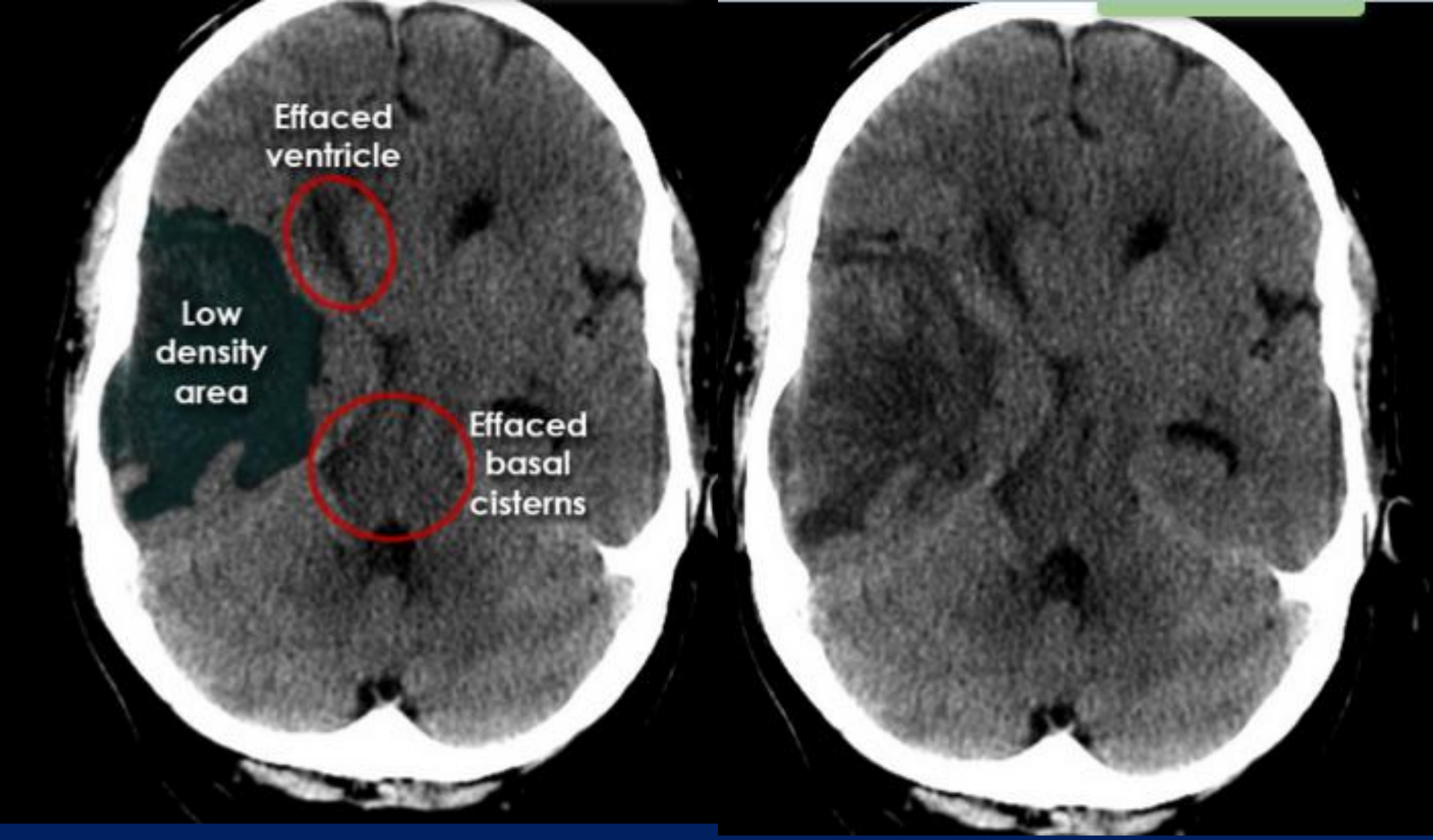
	Left side there is non contrast CT scan of **Glioma /glioblastoma multiforme.**	Right side there is contrast CT scan of **Glioma /glioblastoma multiforme**	
	Edema Mixed density	Edema Hyperdens / increased Enhancement	
			

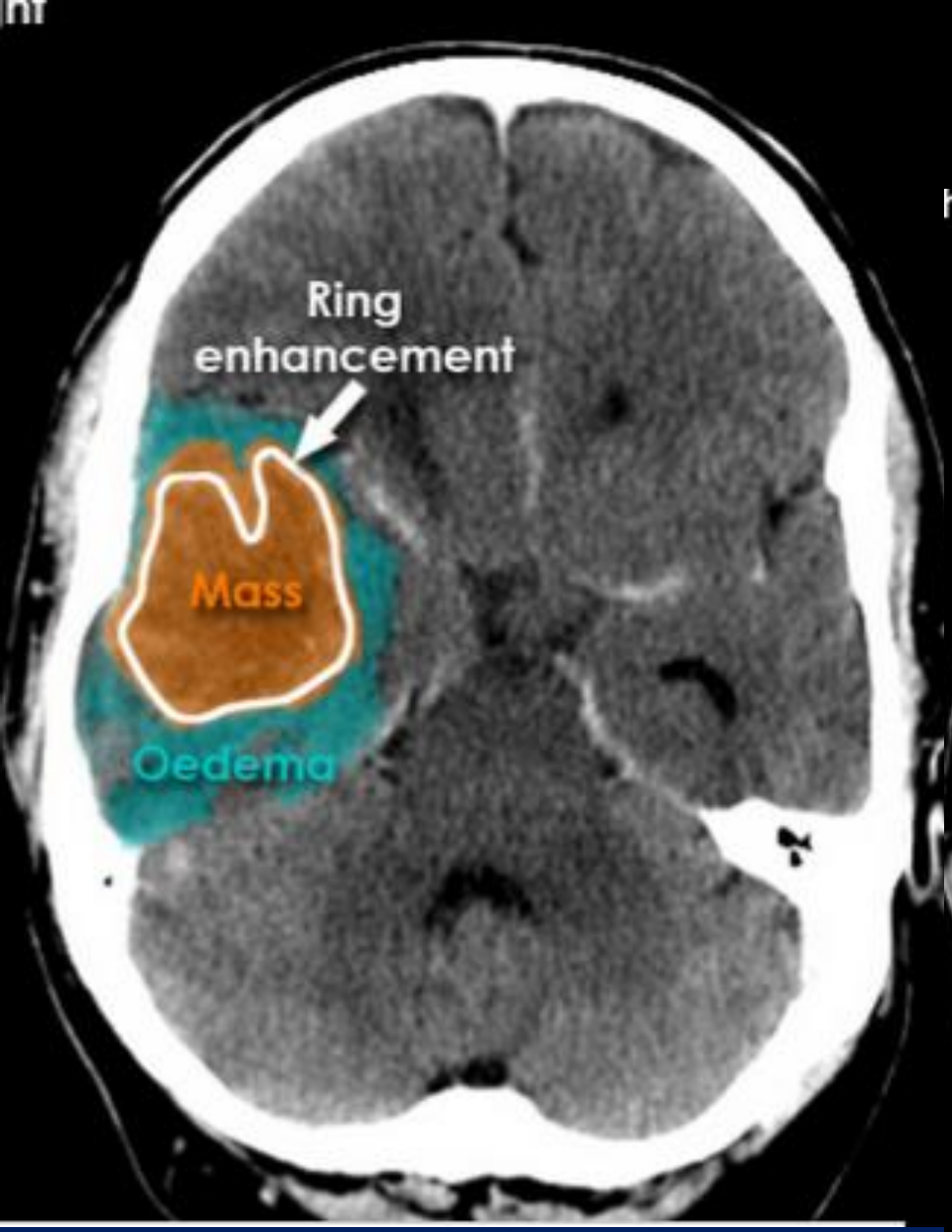


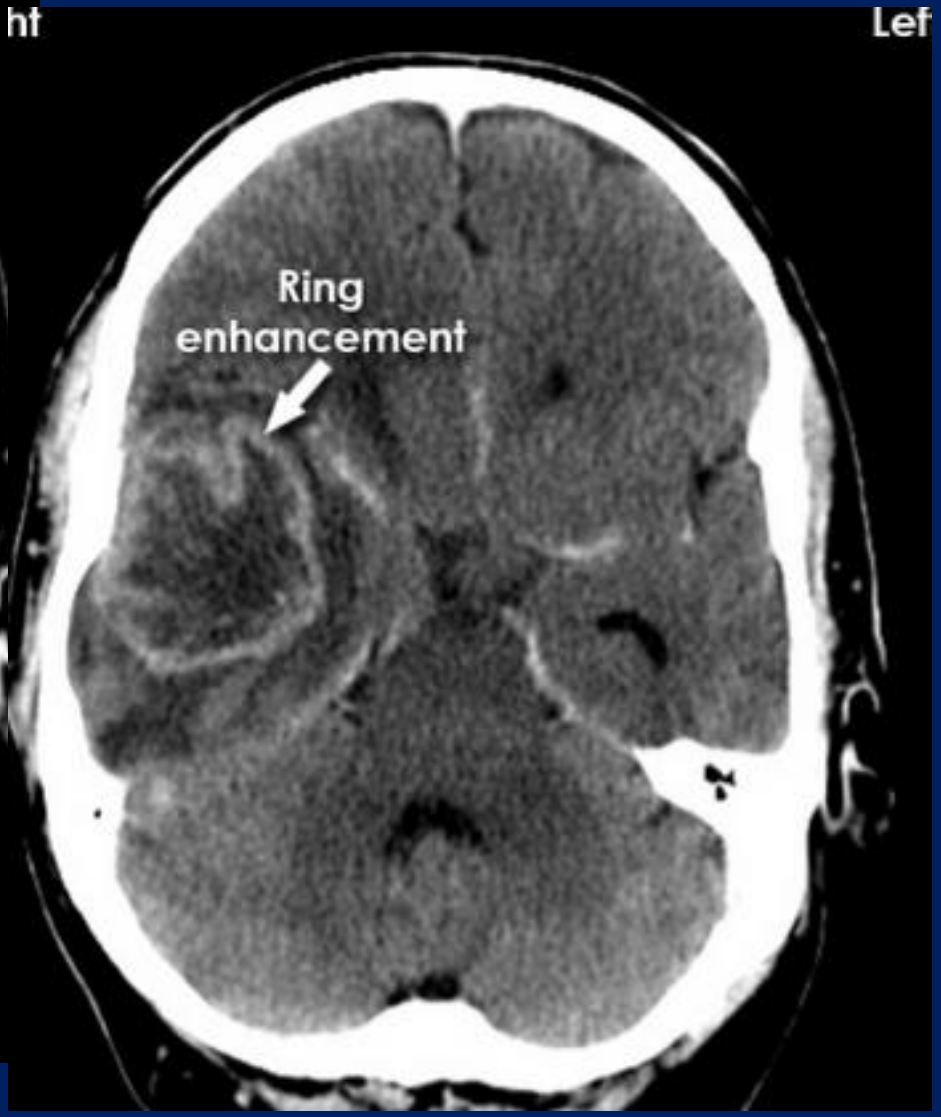
Non contrast CT scan of Glioma



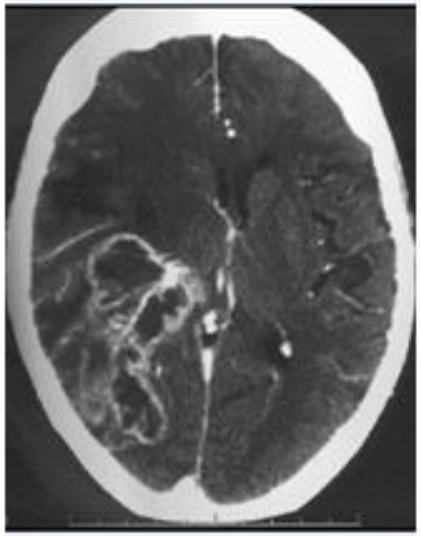
Contrast CT scan of Glioma


Effaced ventricle
Low density area
Effaced basal cisterns

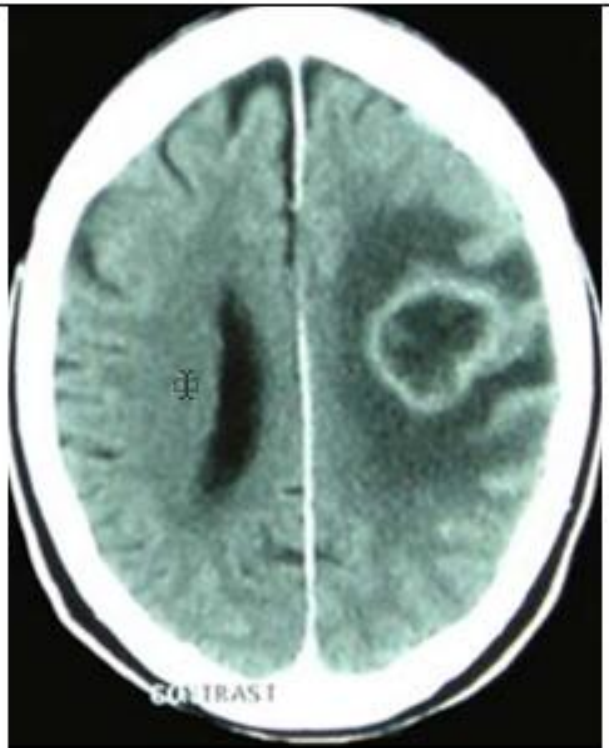

Ring
enhancement
Mass
Oedema


Ring
enhancement

glioblastoma multiforme

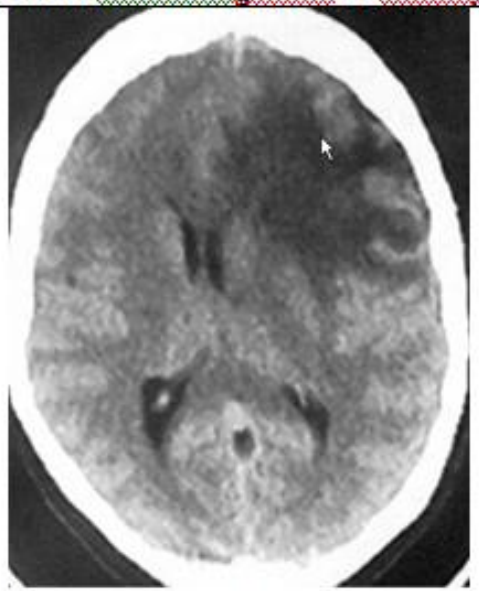


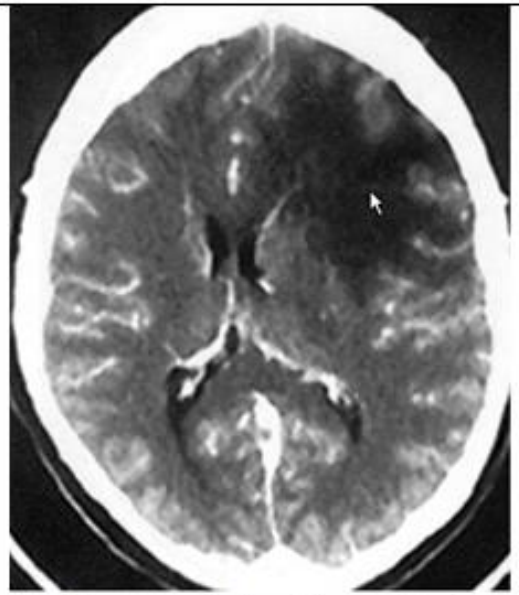
Low grade glioma



Post-contrast scans showing a typical left frontal glioblas-toma multiformi, which is centred in the white mater with surrounding oedema coming to the surface.

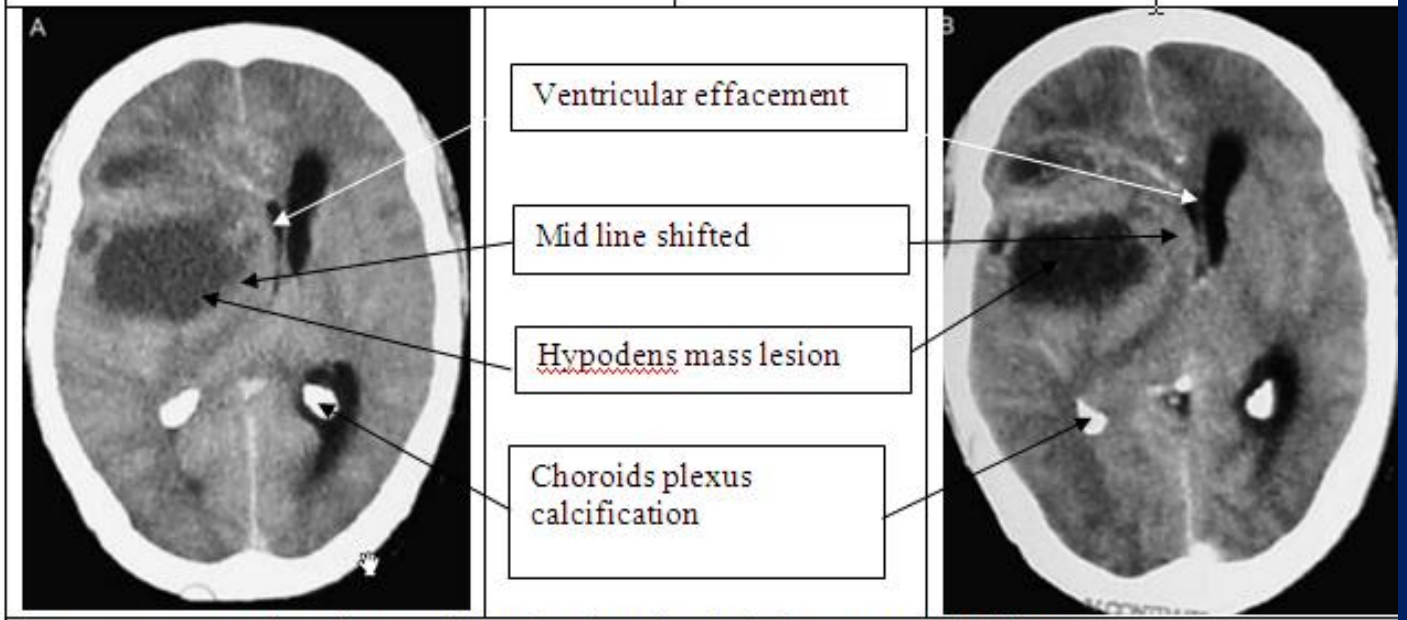
LOW GRADE glioma or astrocytoma



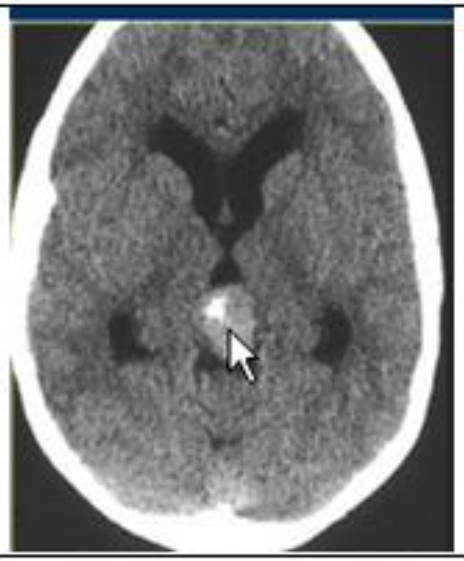
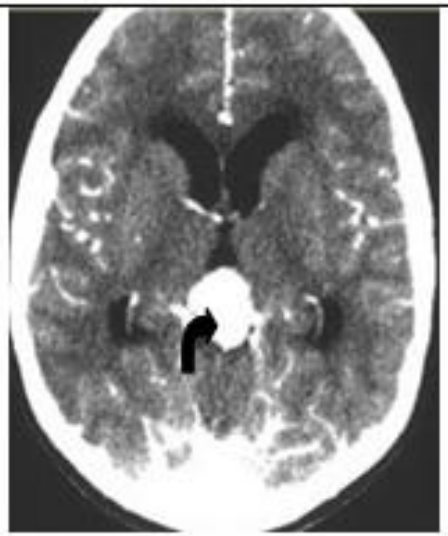


Non contrast CT scan shows a low-grade astrocytoma of the left frontal lobe.

In contrast phase the mass lesion does not take contrast .The tumor is nonenhancing that why It is low grade glioma or astrocytoma

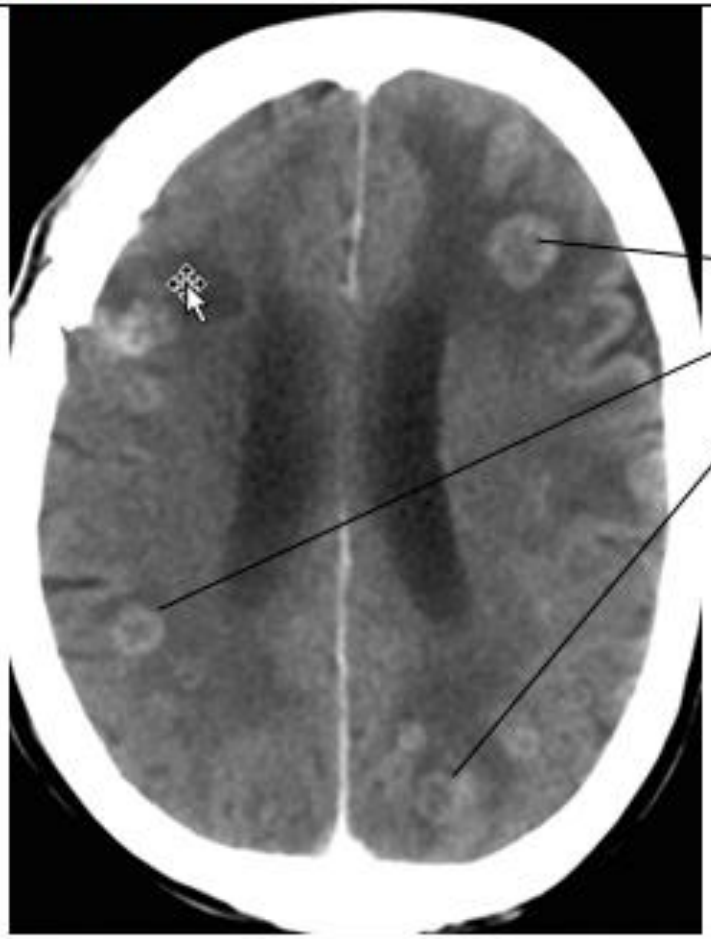


Contrast CT scan showing amoderately enhancing right fron-toparietal glioma

	There is a tumor located in the pineal region.The tumor containscalcifications., which is common for a tumor in the pineal region.		There is homogeneous enhancement .D/D is • Meningioma • Pineocytoma • Germ Cell Tumor (in case child is germinoma)

tuberculoma

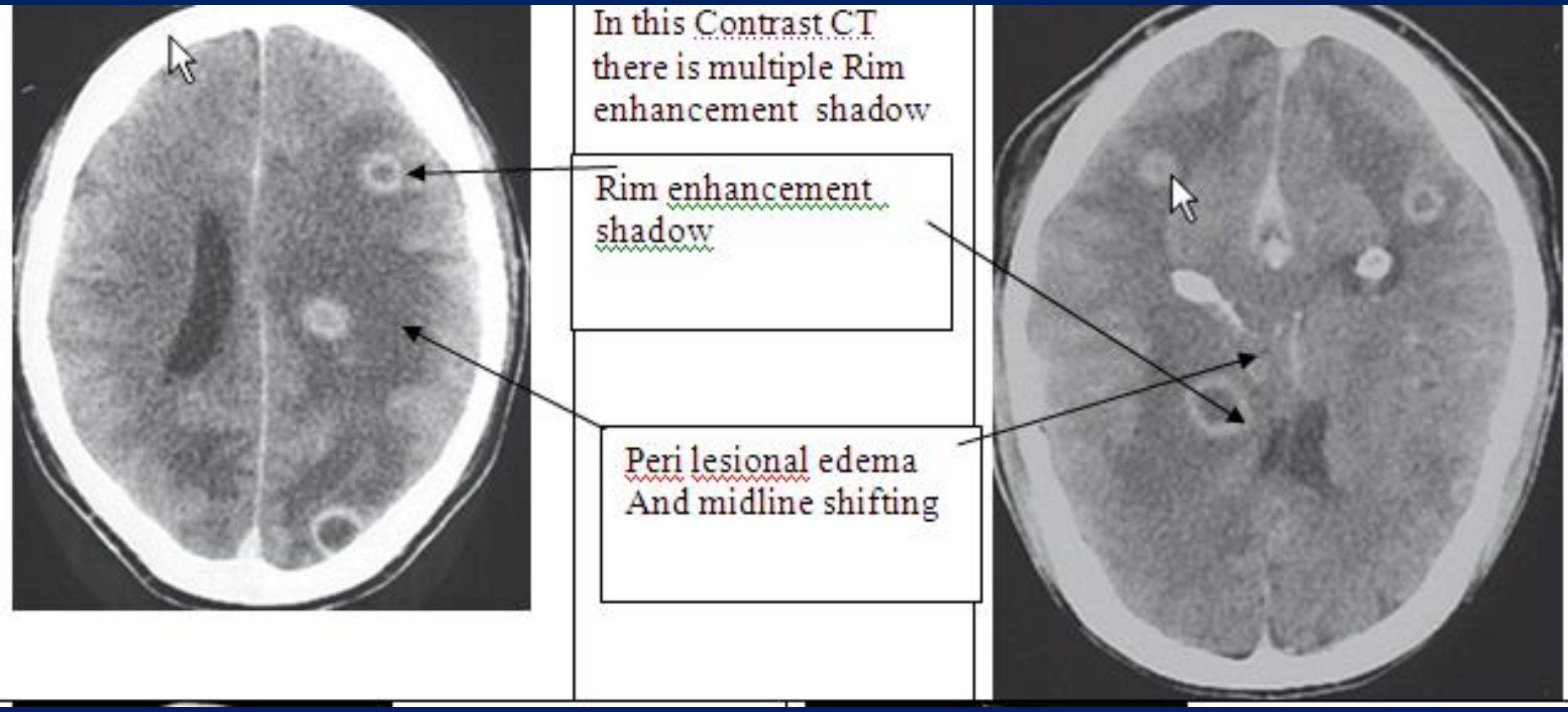
Tuberculosis

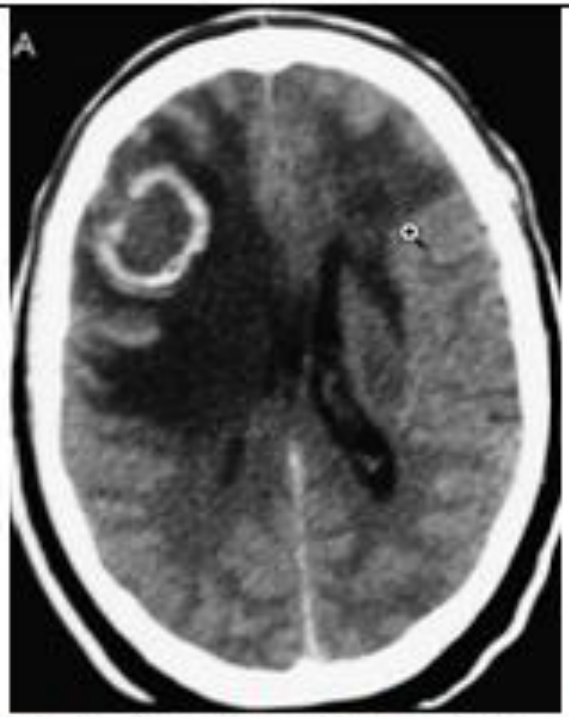


Contrast-enhanced CT scan shows multiple bilateral ring-enhancing lesions (tuberculomas) in the frontal and parietal lobes

Tuberculoma

Multiple rim enhancement shadow due to tuberculoma


In this Contrast CT there is multiple Rim enhancement shadow
Rim enhancement shadow
Peri lesional edema And midline shifting



This is a tuberculosis granuloma

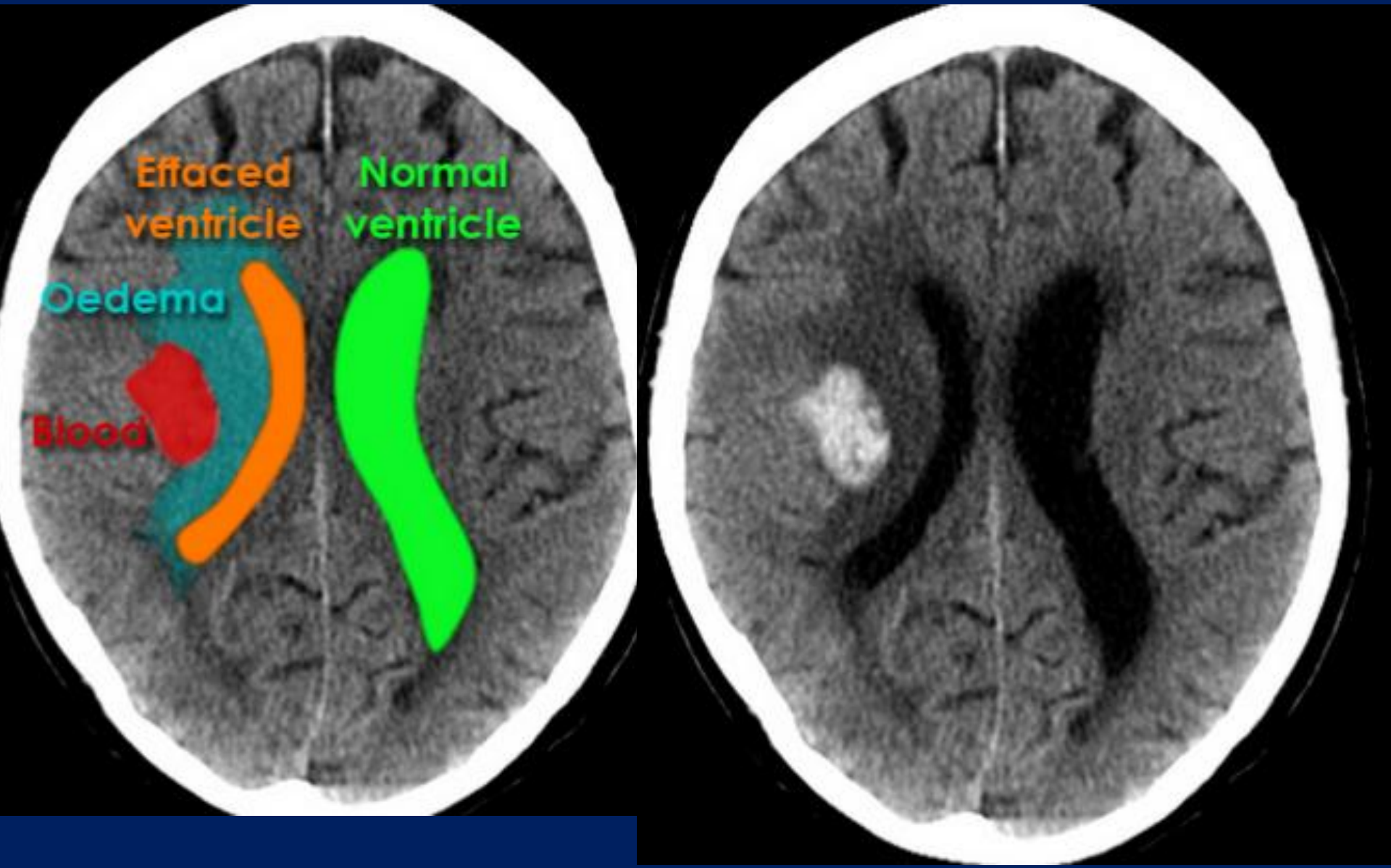
This is metastatic lungcarcinoma

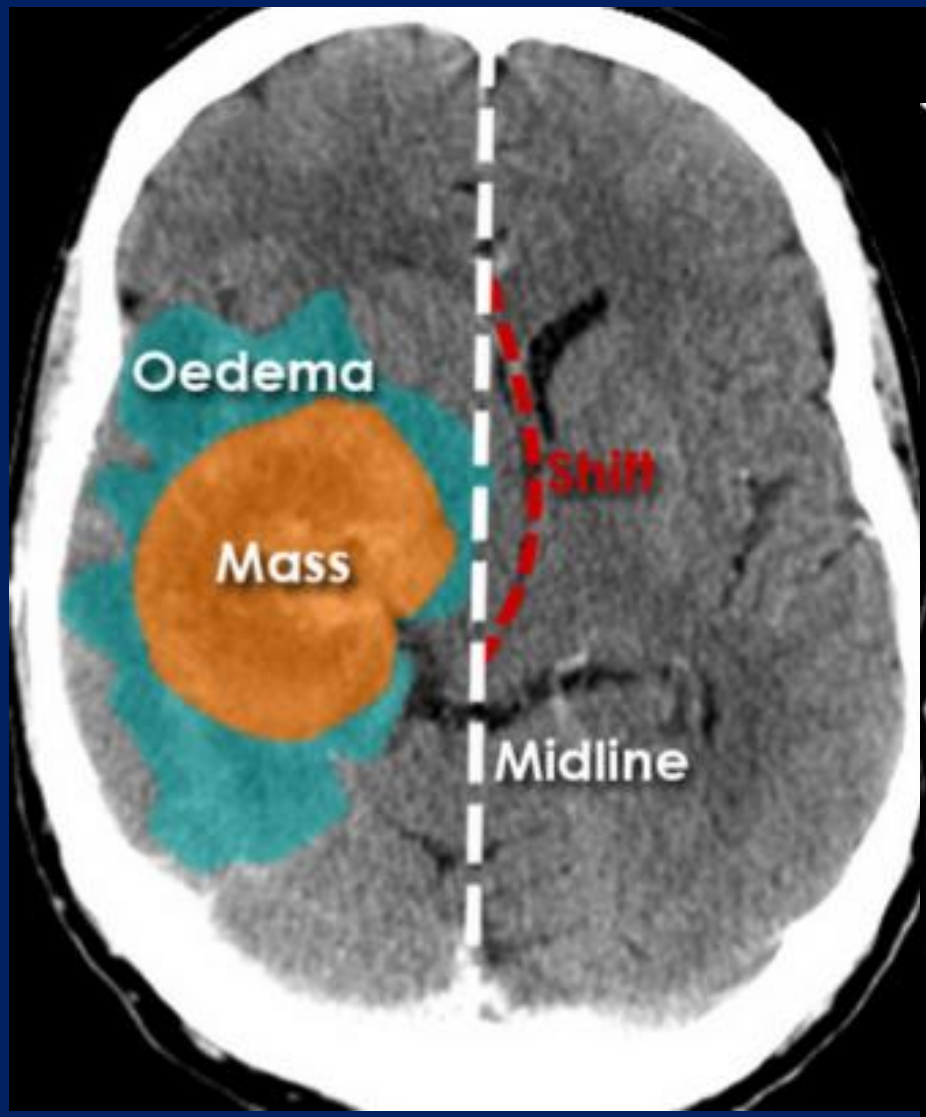
Cerebral metastases - CT brain

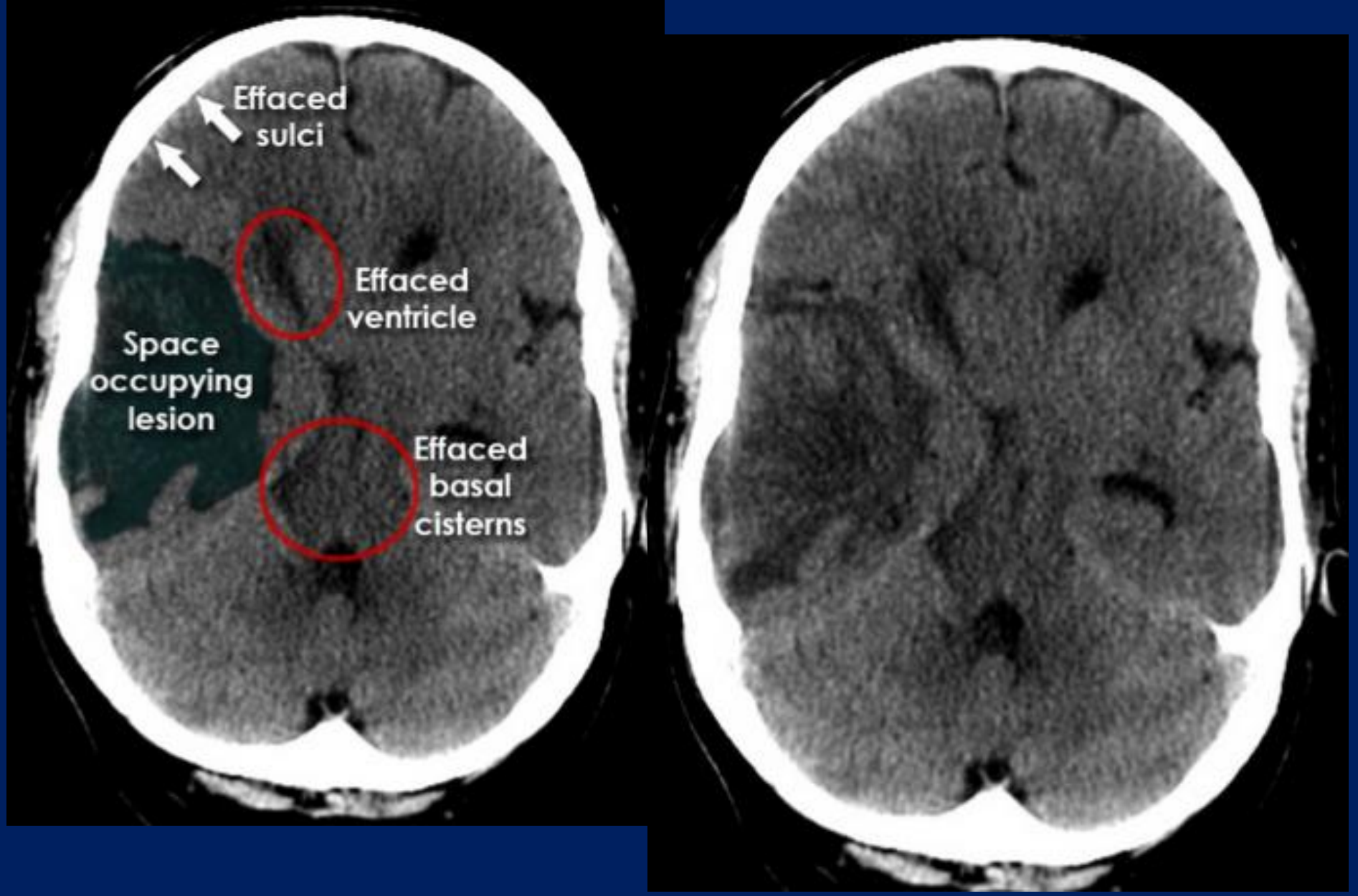
Multiple lesions were seen on both sides of the brain in this patient who had a known diagnosis of lung cancer

The post-contrast image (roll over image) shows ring enhancement of the lesions

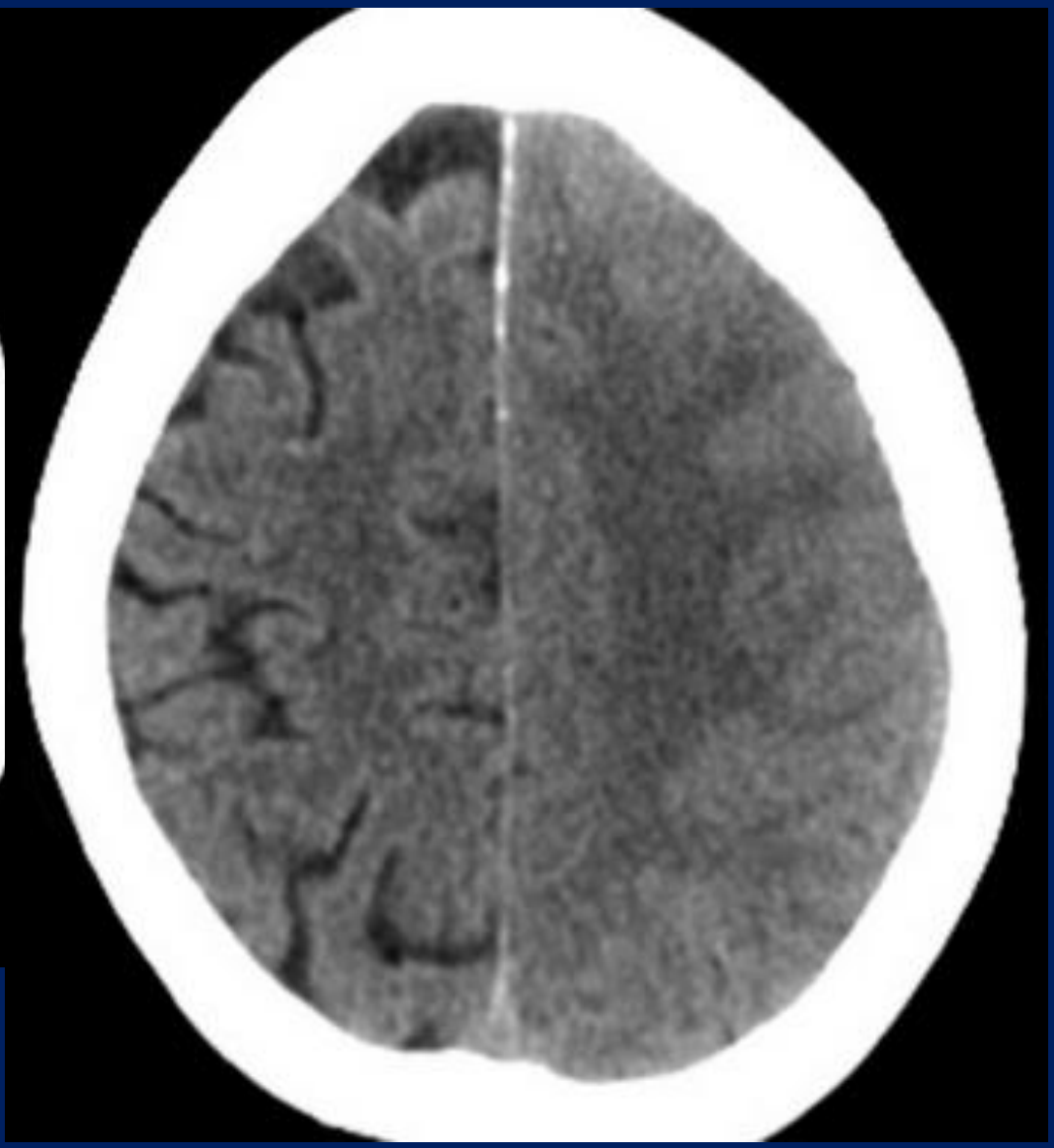
Ventricular effacement


Effaced ventricle
Normal ventricle
Oedema
Blood

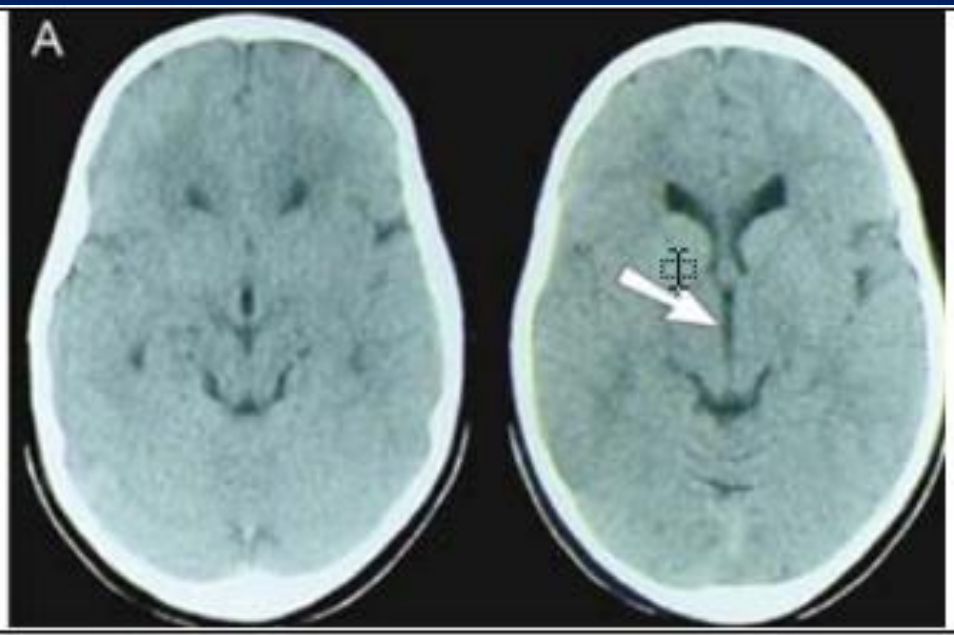

Oedema
Mass
Shift
Midline



Effaced sulci
Effaced ventricle
Space occupying lesion
Effaced basal cisterns

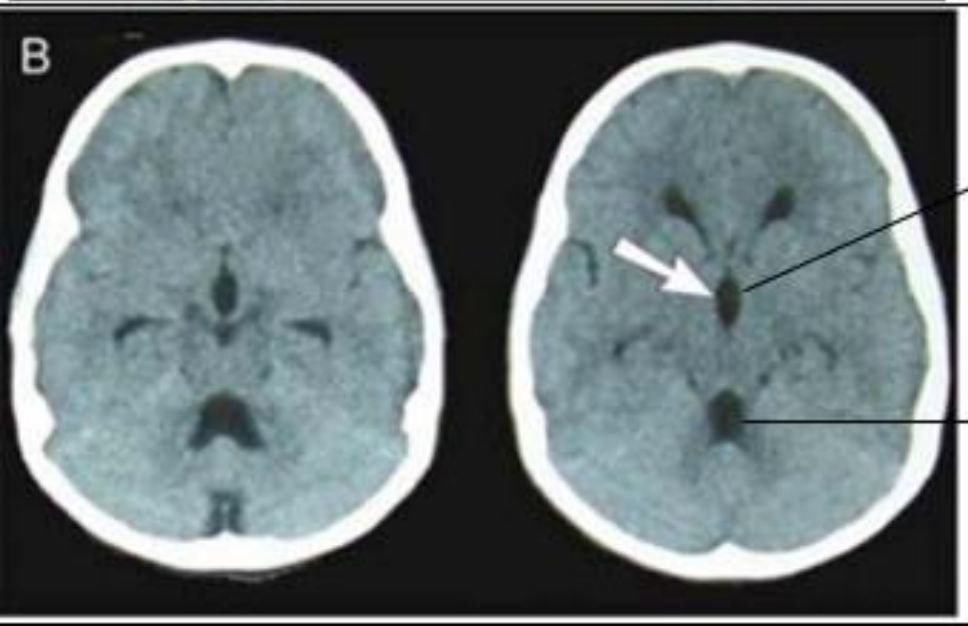

Normal
sulci
Sulcal
effacement



Hydrocephalus



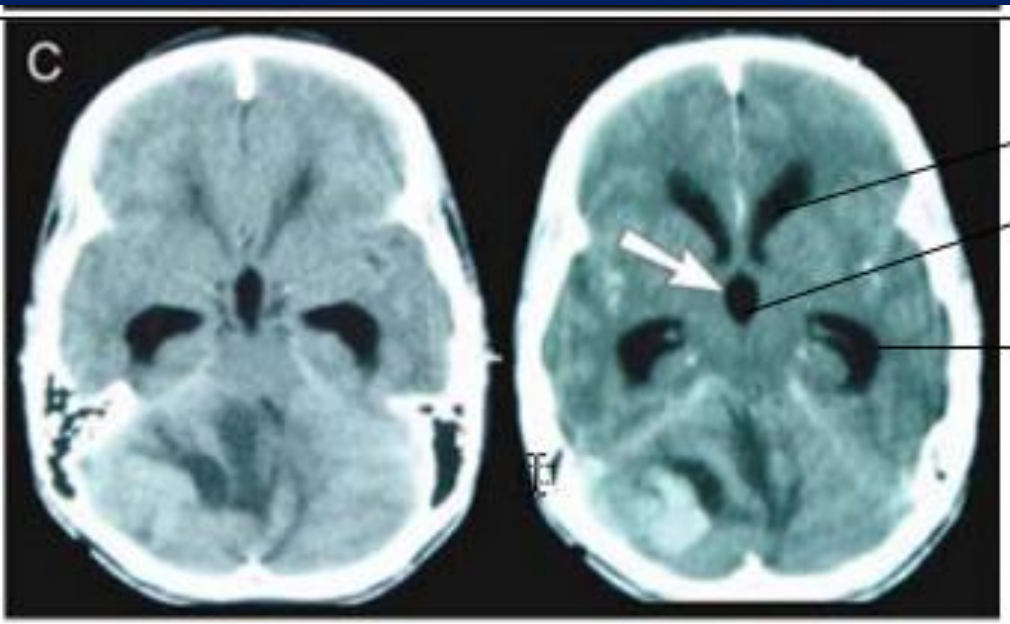
(A) Normal



(B) Mild hydrocephalus

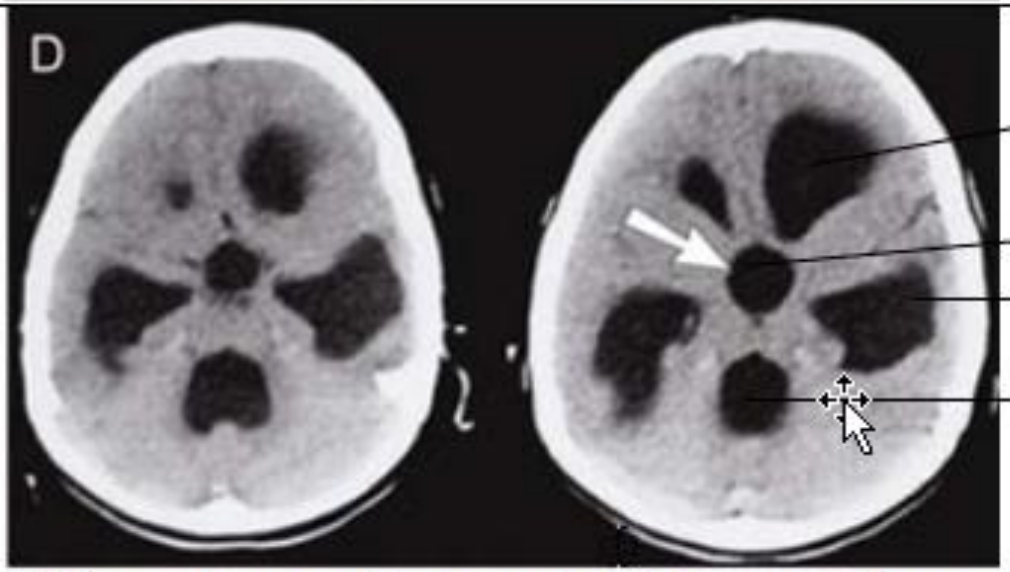
3rd ventricle

4th ventricle



(C) Moderately severe hydrocephalus

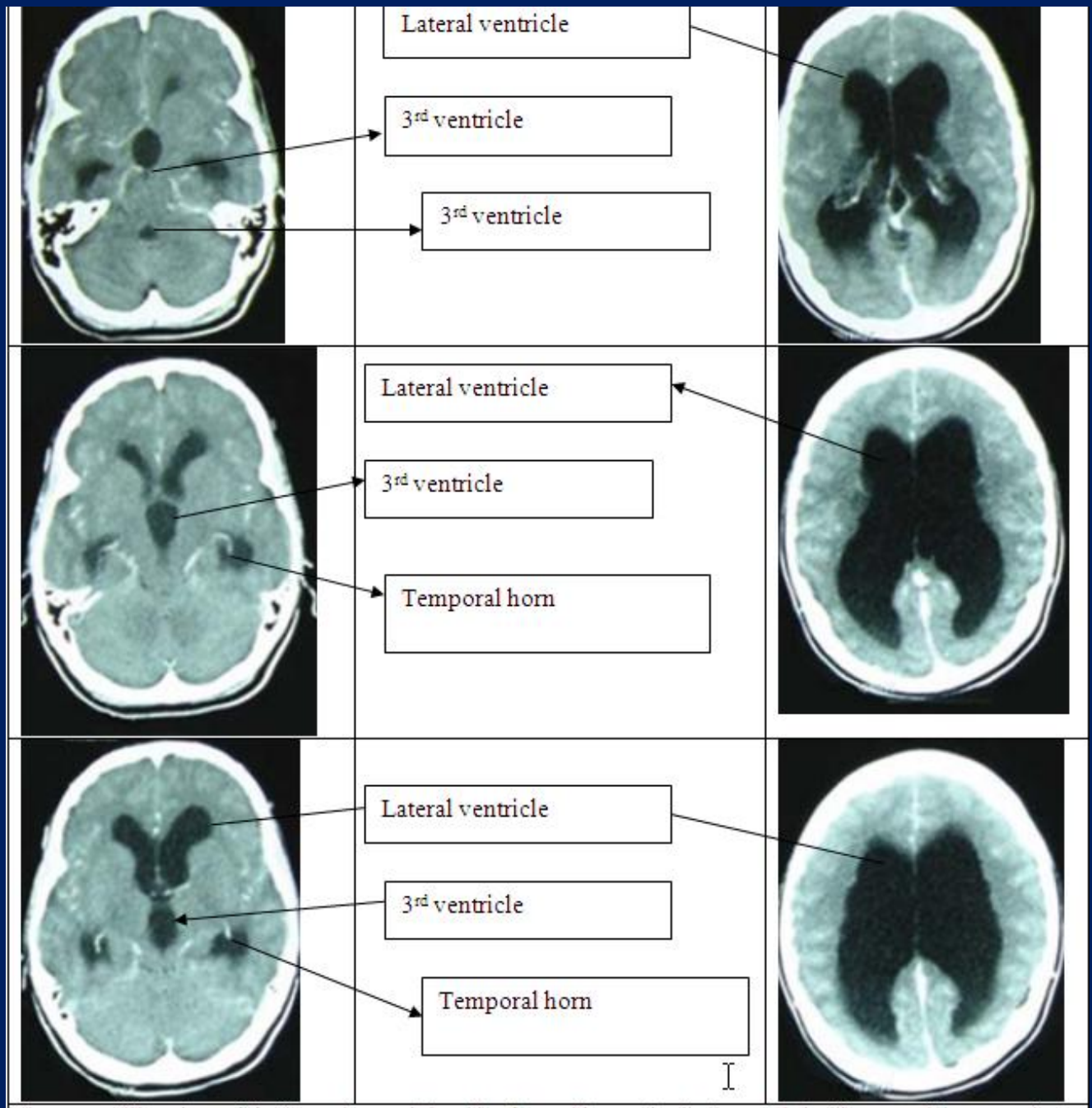
- Frontal horn of lat. ventricle
- 3rd ventricle
- 4th ventricle



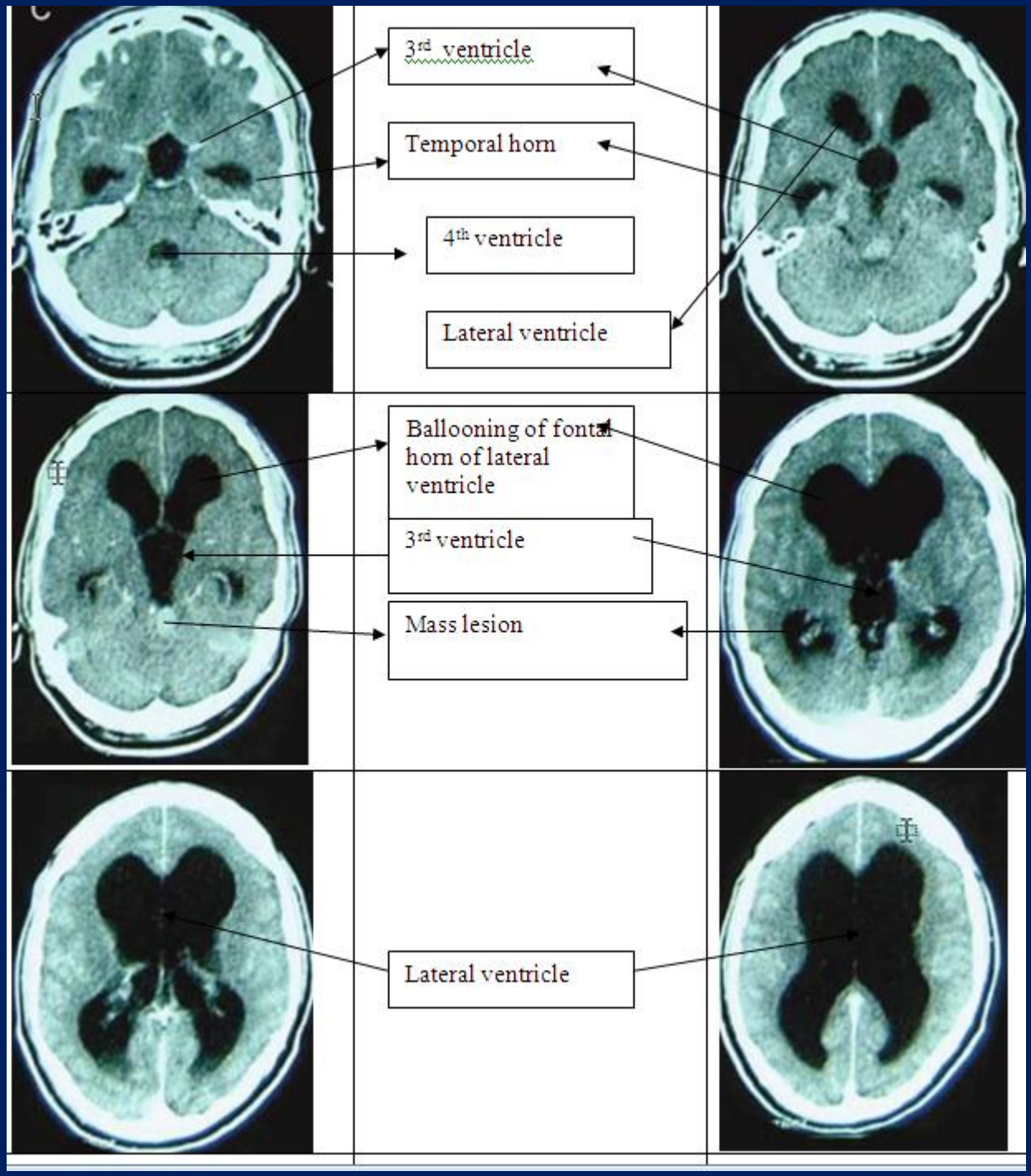
(D) Gross hydrocephalus

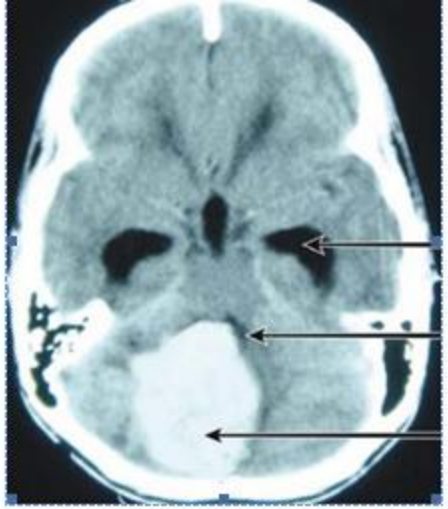
- Frontal horn of lat. ventricle
- 3rd ventricle
- Temporal horn
- 4th ventricle

Different degrees of hydrocephalus from normal to gross –note the third ventricle



the gross dilatation of the lateral ventricles (the frontal horn, the body, occipital horn and (temporal horns) and the third ventricle. The sulci are effaced

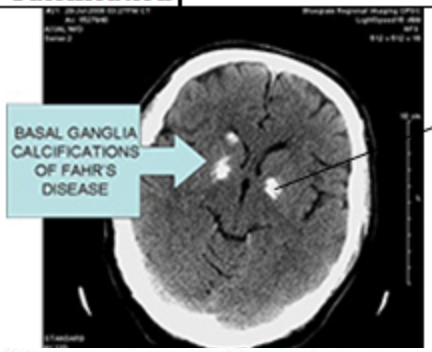

3rd ventricle
Temporal horn
4th ventricle
Lateral ventricle
Ballooning of fontal horn of lateral ventricle
3rd ventricle
Mass lesion
Lateral ventricle



CT scan of hydrocephalus

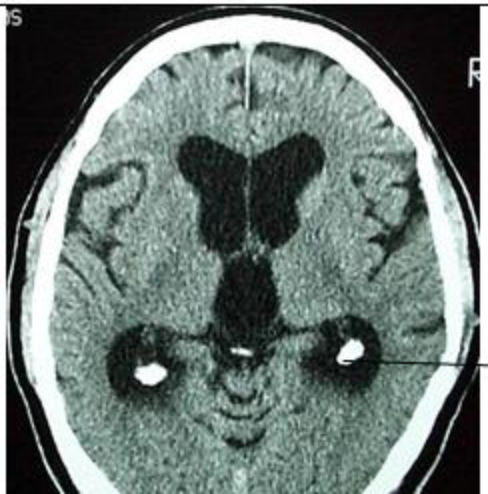
haematoma (A) causing almost complete compression of the fourthventricle (B) with obvious hydrocephalus seen in the dilated temporal horns (C).

Calcification

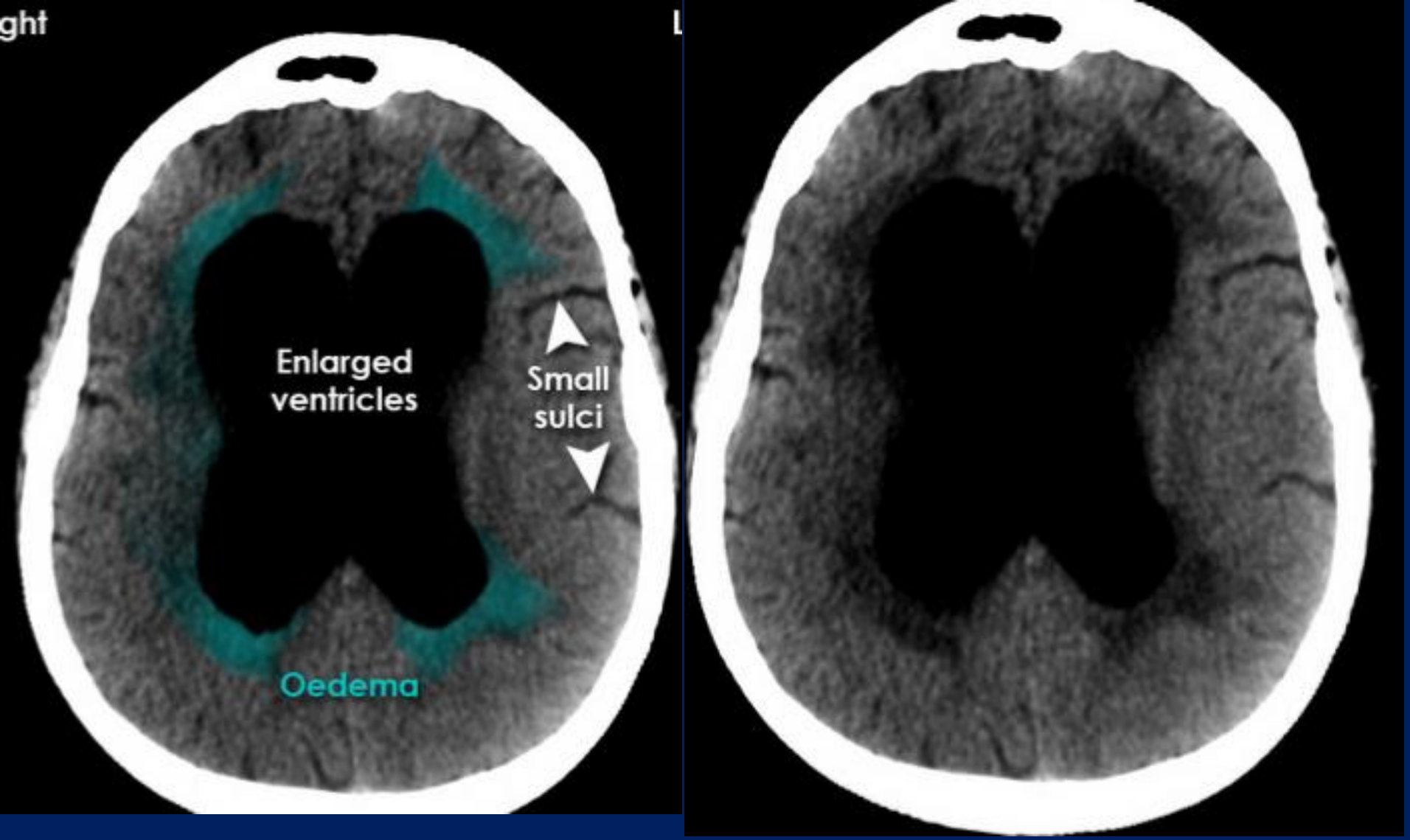


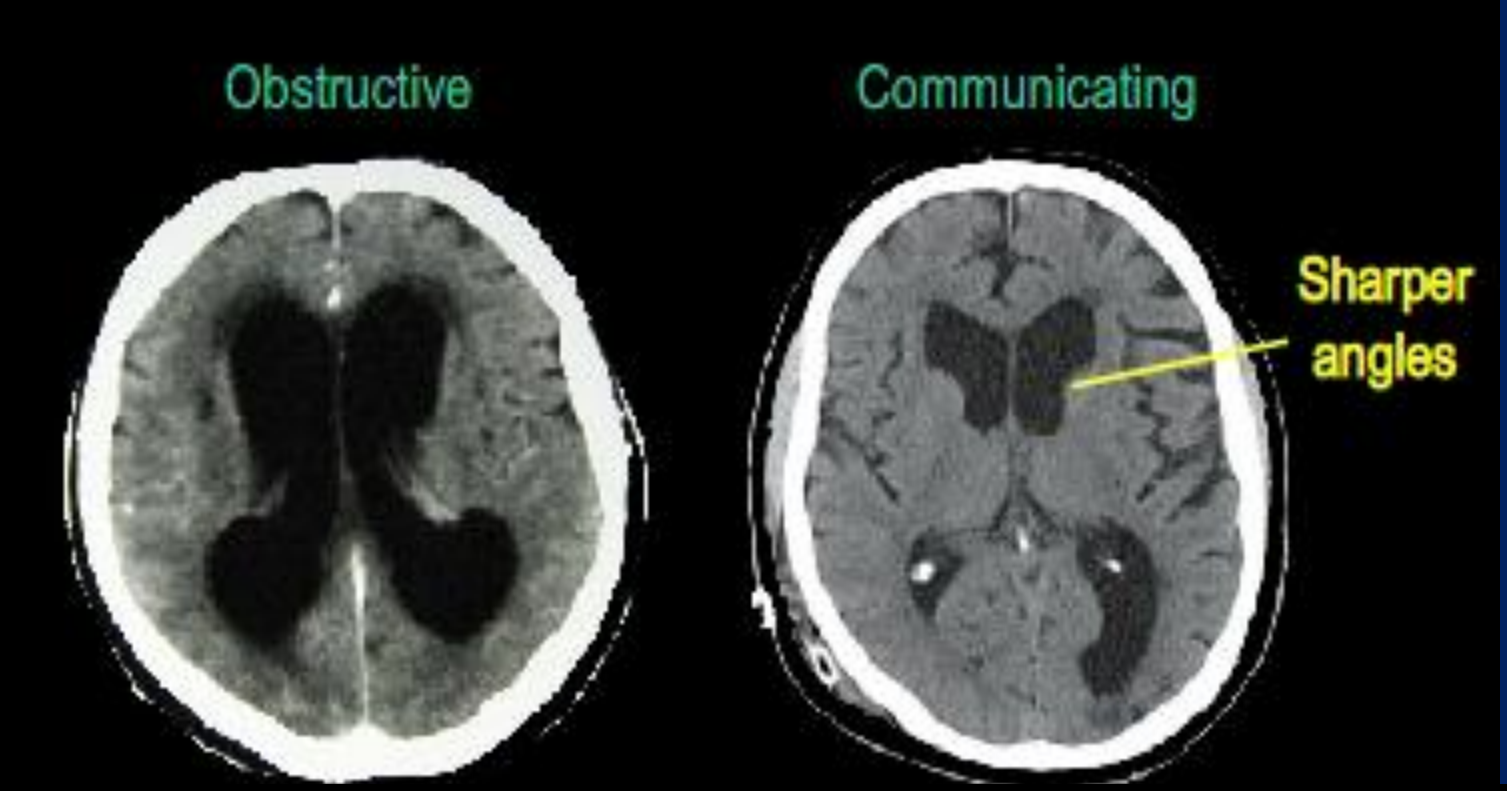
Bilateral calcification of basal ganglia

In calcification there will be hyper density that will be like that of bone .
Hyper density in hemorrhage is less than bone density



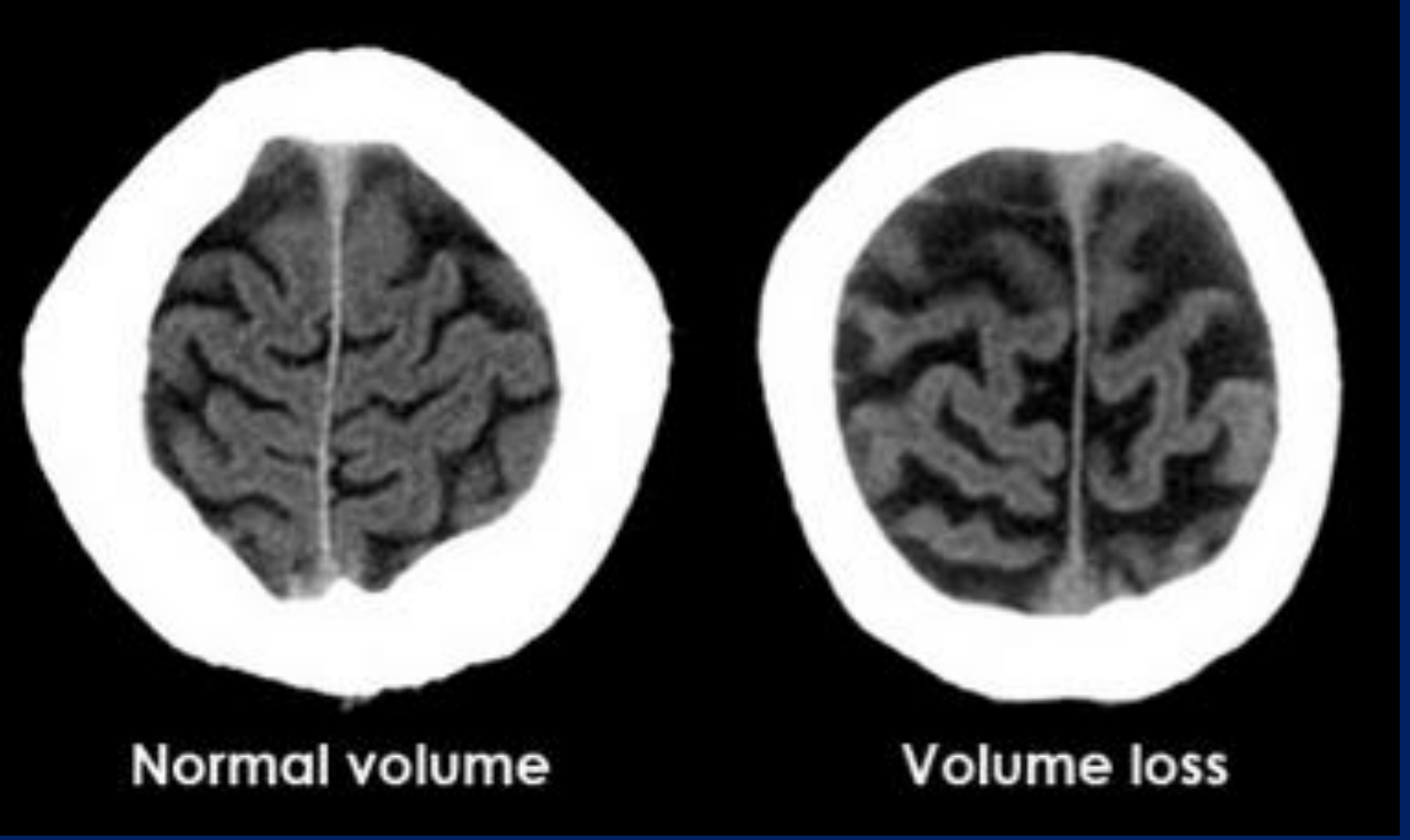
Calcification of choroidal plexus in the occipital hore of lateral ventricle


ght
Enlarged ventricles
Small sulci
Oedema



CT is an excellent modality for diagnosing hydrocephalus. In obstructive hydrocephalus, the ventricles tend to have rounder angles, whereas in communicating hydrocephalus the angles are sharper.

Brain atrophy


Normal volume
Volume loss

Dilatation of frontal horn lateral ventricle

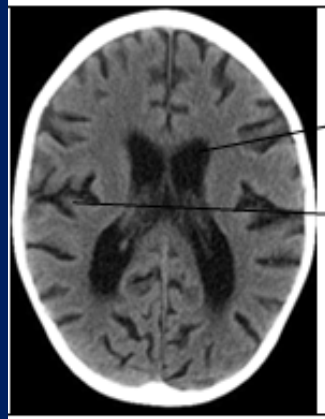
Lateral sulcus

Prominent of sulci

Dilatation of frontal horn lateral ventricle

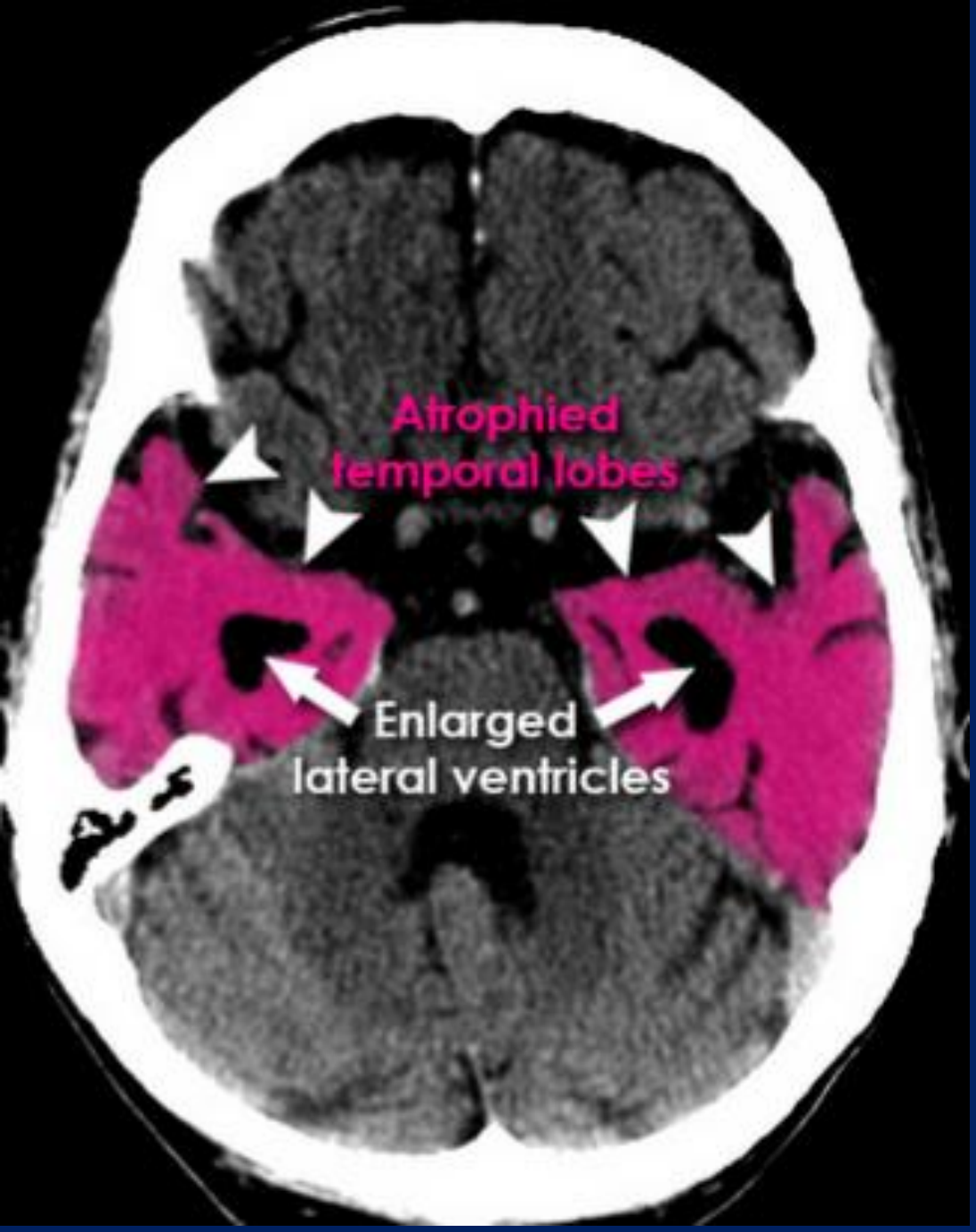
3rd ventricle

Dilation of Lateral sulcus

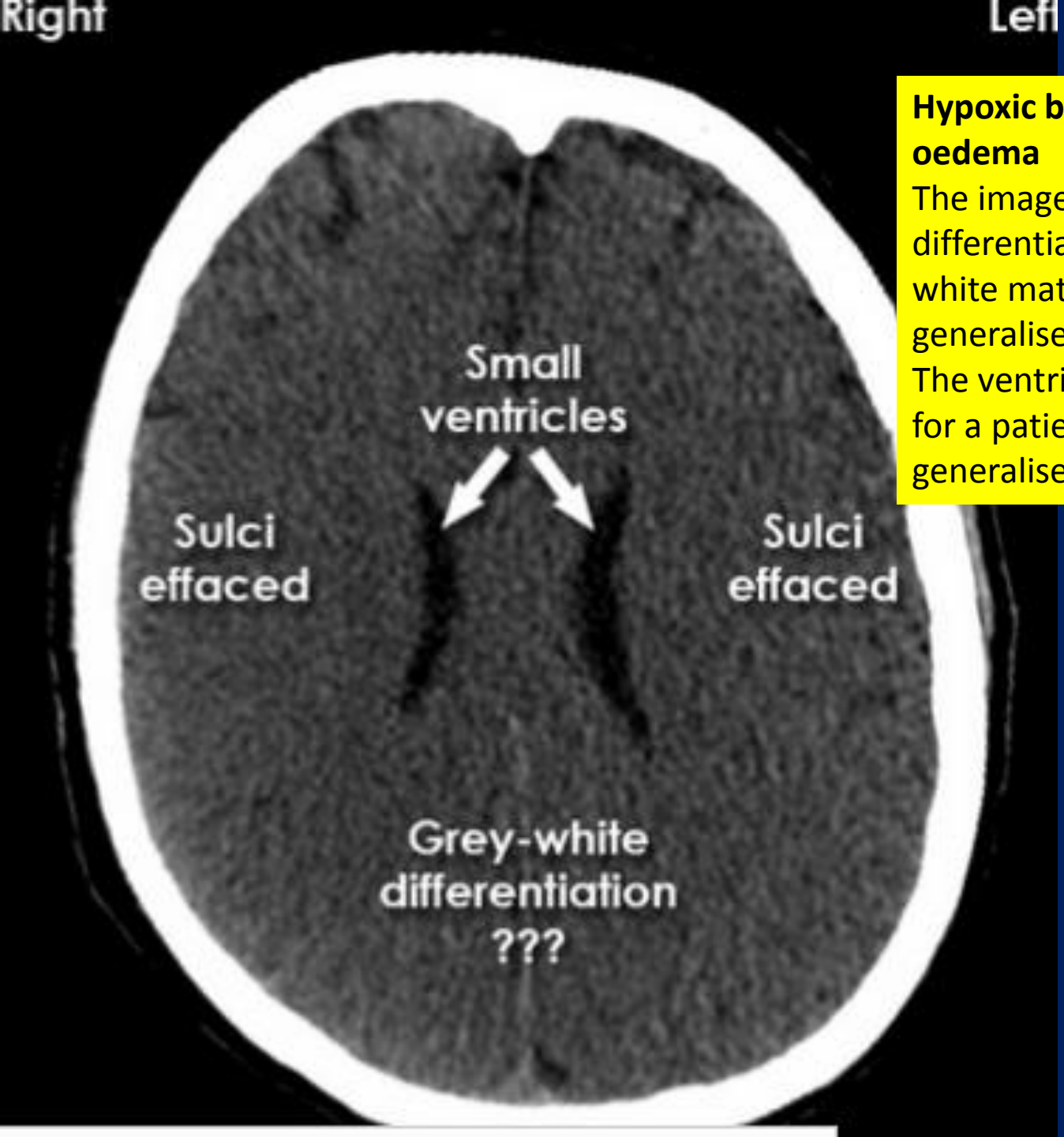


Dilation of lateral ventricle

Prominent of sulci


Atrophied
temporal lobes
Enlarged
lateral ventricles

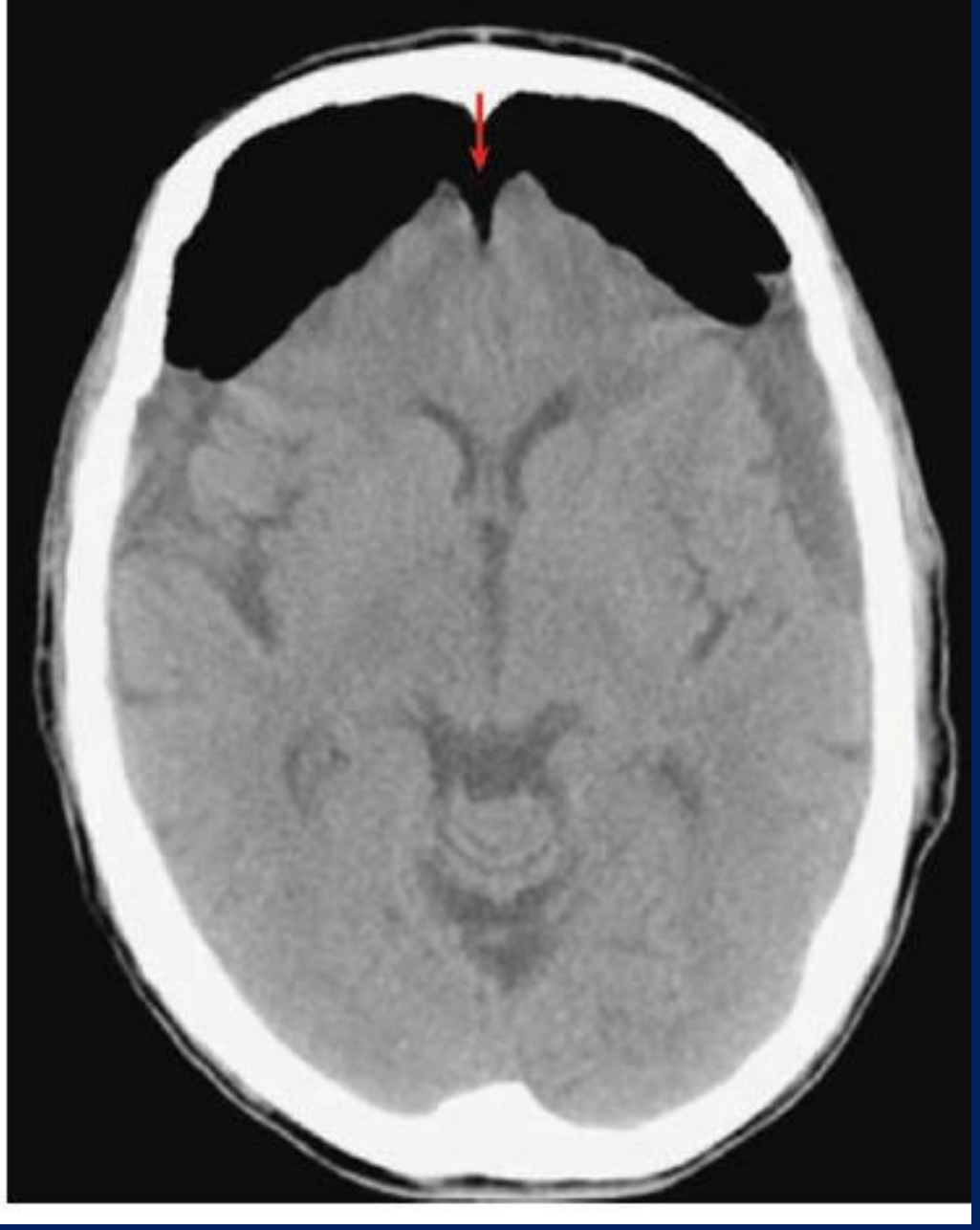
Hypoxic brain injury with cerebral edema



Hypoxic brain injury with cerebral oedema

The image shows striking loss of differentiation between grey and white matter structures due to generalised cerebral oedema

The ventricles and sulci are very small for a patient of this age indicating generalised brain swelling



Axial CT shows bifrontal pneumocephalus and subdural fluid collections. There is compression of the frontal lobes and widening of the interhemispheric space (arrow).